

## VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the Virginia Pollutant Discharge Elimination System (VPDES) permit listed below. This permit is being processed as a Minor, Industrial Permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260 et seq. The discharge results from storm water runoff at the site of a wood processing, wood preserving (the facility utilizes copper azole, chromated copper arsenate (CCA) and Dricon®, a fire retardant), and wood mulching operation. The facility also manufactures fiberglass products. There is no wastewater or storm water runoff associated with the fiberglass manufacturing operation. This permit action consists of updating permit special conditions and re-evaluating effluent limitations. In addition, storm water discharges associated with the wood mulching operation (Outfalls 003 and 004) will be authorized with this permit reissuance.

1. Facility Name: Wood Preservers, Inc.  
  
Facility Address: 15939 Historyland Highway  
Warsaw, Virginia 22572  
  
Mailing Address: P. O. Box 158  
Warsaw, Virginia 22572  
  
SIC Code: 2491 (Wood Preserving)  
2421 (General Sawmills and Planing Mills)  
2499 (Wood Products Not Elsewhere Classified; Mulch)  
3087 (Fiberglass Production) – Covered Operation; No Runoff
2. Permit No. VA0083127 Existing Permit Expiration Date: 1/2/2011
3. Owner: Wood Preservers, Inc.  
Owner Contact: W. Morgan Wright  
Title: President  
Telephone No.: 804-333-4022  
Email: [MWright@woodpreservers.com](mailto:MWright@woodpreservers.com)
4. Application Complete Date: 3/29/2012  
Permit Drafted By: Andrew Hammond Date: 11/01/10, 04/10/12, 06/14/12  
Reviewed By: Emilee Carpenter Date: 11/17/10  
Ray Jenkins Date: 12/28/10, 01/21/11  
Curt Linderman Date: 05/06/11, 04/10/12, 06/14/12
5. Receiving Stream Name: Clarks Run, UT (Outfall 001, 003, 004)  
Little Totuskey Creek, UT (Outfall 002)  
River Mile: 3-XAQ000.40 (Outfall 001)  
3-XQT000.72 (Outfall 002)  
3-XAQ000.22 (Outfall 003)  
3-XAQ000.11 (Outfall 004)  
Basin: Rappahannock  
Subbasin: N/A  
Section: 2  
Class: III  
Special Standards: None  
  
7-Day, 10-Year Low Flow (7Q10): 0 MGD 1-Day, 10-Year Low Flow (1Q10): 0 MGD  
7-Day, 10-Year High Flow: 0 MGD 1-Day, 10-Year High Flow: 0 MGD  
30-Day, 5-Year Low Flow (30Q5): 0 MGD Harmonic Mean Flow (HM): 0 MGD  
30-Day, 10-Year Low Flow (30Q10): 0 MGD

Tidal? No

On 303(d) list? No

See **Attachment 1** for flow frequency analysis memo.

6. Operator License Requirements: None required.

7. Reliability Class: Not applicable.

8. Permit Characterization:

☒ Private

☐ Federal

☐ State

☐ POTW

☐ Possible Interstate Effect

☐ Interim Limits in Other Document (attach to Fact Sheet)

9. Description of Facility Activities:

See **Attachment 2** for a facility flow diagram, **Attachment 3** for an outfall location map, and **Attachment 4** for an existing storm water management practices location map.

Attachment 2 indicates that the facility utilizes up to 6,000 gallons per day for “seasonal dust control.” The permittee indicated on 2/7/2012 that the facility does not perform “wet decking” (i.e. the intentional spraying of raw wood product waiting processing with water for dust control or other purposes).

Table 1. Storm Water Flow and Treatment

Outfall Number	Discharge Source	Treatment	Maximum Flow as reported on DMRs
001	Storm Water	Grassed Swales Rock Check Dams Lined Sedimentation Basin Storm Water Treatment Unit	1.20 MGD
002	Storm Water	Grassed Swales Sediment Trap Stone Outlet Filter	0.15 MGD
003	Storm Water	Storm Water Diversion (Soil Berm)	Initial Permitting No Data Available
004	Storm Water	Storm Water Diversion (Soil Berm)	Initial Permitting No Data Available

The subject property includes four (4) storm water outfalls. The drainage area to Outfall 001 is approximately 79.4 +/- acres and consists of uncovered raw wood storage, covered and uncovered treated wood storage, covered wood preserving facilities, covered sawmill and planning facilities, maintenance facilities, and covered fiberglass production facilities. A portion of the storm water runoff from this drainage area travels via overland flow, grassed swales, and a natural drainage way to Outfall 001. Rock check dams have been constructed perpendicular to the storm water flow path to prevent sediment from leaving the site and entering the natural drainage way. The majority of the storm water runoff from this drainage area travels via overland flow and grassed swales to a lined sedimentation basin which discharges into a storm water treatment unit. The sedimentation basin aids in the removal of suspended chromium, copper, and arsenic via settling; whereas, the storm water treatment unit has been engineered to remove dissolved chromium, copper, and arsenic from the sedimentation basin effluent. After passing through the storm water treatment unit, the treated runoff is then discharged into a natural drainage way which flows to Outfall 001. The drainage area to Outfall 002 is approximately 10.6 +/- acres and consists of covered and uncovered treated wood storage, a gravel employee parking area and a truck scale. The storm water runoff from this drainage area also includes drainage from the highway and travels via overland flow and a grassed swale to an engineered sediment trap.

Treated runoff is then discharged from the sediment trap through a sand/stone filter berm into Outfall 002. The drainage area to Outfall 003 is approximately 9.8 +/- acres and consists of uncovered wood mulch storage. The drainage area to Outfall 004 is approximately 16.1 +/- acres and is comprised of uncovered wood mulch storage and a covered wood mulch packaging area. Storm water runoff from these drainage areas travels via overland flow to storm water diversions (i.e. soils berms) which aid in the deposition of suspended solids on-site. Storm water runoff is then discharged into natural drainage ways which flow to Outfalls 003 and 004.

The facility is a recycle/reuse facility with regard to wood preserving process wastewater. Therefore, no process wastewater is discharged to State waters. Contaminated groundwater from the previously closed Resource Conservation and Recovery Act (RCRA) evaporation impoundments is withdrawn, treated, and used as dilution water for the wood preserving chemical concentrate. The company which supplies the facility with its wood preserving chemical concentrate has provided a computer program that aids in the wood preservation process by showing the operator the approximate time needed for treatment and approximately how much of the wood preserving concentrate is remaining after treatment. Any wood preserving concentrate that is not utilized during the treatment process is recycled back to concentrate holding tanks to be reused at a later time. Waste material including waste generated by cleaning operations is stored in 90 day containment areas within the facility until it is transported to a permitted hazardous waste disposal site.

The wood preservation portion of the facility has a number of spill containment measures including a drip pad and four emergency spill containment stations. All chemically treated wood is stored on the drip pad until drippage has ceased. Periodic inspections of the drip pad are performed and housekeeping activities are performed daily. During 2004, the facility hired a structural engineer to determine the drip pad's integrity. As a result of this inspection, deteriorated sections of the pad were removed and replaced bringing the drip pad into compliance with 40 CFR 265 Subpart W. Fork lift operators who operate on the drip pad are required to clean their wheels before they leave the drip pad. The emergency spill containment stations located around the wood preservation facility also help to block/retard any chemical spill(s) from migrating downstream.

As previously noted, all treated wood is stored on the drip pad until drippage has ceased to help prevent storm water and groundwater contamination. This facility also utilizes an additional step in the wood preservation process, accelerated fixation. This process accelerates the fixation of CCA by using heat, steam, and organics in the wood. Treated wood is stored in uncovered areas as well as in storage sheds, some of which contain asphalt or concrete floors.

The facility's current VPDES Ground Water Monitoring Plan was reviewed and approved by DEQ on May 17, 1995, and includes provisions for monitoring the uncovered treated wood storage area. More specifically, the plan indicates that if elevated levels of site specific analytes are detected in Outfall 001, a soil sampling and analysis plan will be developed to assess constituent levels in the soil and to evaluate the potential ground water impacts. The 2006 permit included a special condition that required the permittee to monitor the storm water influent (runoff from the uncovered treated wood storage area) to the engineered storm water treatment basin, which ultimately discharges to Outfall 001. If elevated levels of site specific analytes were detected in the influent then the permittee would potentially be required to further assess soil contamination levels, the associated ground water impacts, and potentially revise the ground water monitoring plan to include site specific monitoring for the uncovered wood storage area. Monitoring and reporting during the 2006 permit cycle indicated sporadic elevated levels of total recoverable arsenic and total recoverable chromium in the storm water influent. As a result, the 2012 draft permit included a special condition (Part I.B.9) requiring the permittee to submit an approvable revised ground water monitoring plan. However, in response to owner comments and in an effort to reduce duplicative monitoring and reporting, ground water monitoring and reporting has been removed from this permit.

The DEQ Resource Conservation and Recovery Act (RCRA) Corrective Action Program currently oversees an extensive site-wide ground water monitoring and corrective action effort in accordance with a Modified Enforcement Order, Post-Closure Care Plan for past contamination at the facility. More specifically, the Order addresses two (2) closed surface impoundments that were previously closed as landfills in 1988. The Order requires the facility to conduct ground water monitoring, provide financial assurance, implement necessary

corrective measures, and perform maintenance. In response to the Order, monitoring wells have been placed throughout the property (including within the uncovered treated wood storage area) to monitor the ground water contamination. As a result of the successful completion of ground water remediation activities and to incorporate aspects of Virginia's and EPA's Burden Reduction Program, the Order was modified in 2011 to reduce the ground water monitoring requirements. As part of on-going corrective action, the facility is conducting a site-wide RCRA Facility Investigation/Corrective Measures Study directed by DEQ, with oversight by EPA. The permittee submitted its initial RCRA Facility Investigation Report (RFI) to DEQ in June 2003, which characterized soil contamination levels and ground water quality site-wide including within the uncovered treated wood storage area (identified as Area of Concern 3 or AOC 3 in the RFI). In response to the RFI and at DEQ's request, the permittee submitted a "Hot Spot" Soil Remediation Plan (which encompassed portions of AOC 3) on March 16, 2011; it is also noted that the RFI did not identify any ground water impacts to AOC 3. The permittee performed hot spot soil excavation during calendar year 2011. DEQ indicated by letter on December 8, 2011, that the clean up goal for AOC 3 had been met and that no further assessment or remediation was required within that area. Currently, calendar year 2018 has been established as the endpoint for post-closure care, which is beyond the lifespan of this permit. Consequently, continued ground water monitoring and reporting under this VPDES permit should be reevaluated during the next permit reissuance (projected during calendar year 2017). See **Attachment 11** for additional documentation.

10. Sewage Sludge Use or Disposal: Not applicable as this facility does not generate sewage sludge.

Discharge Location Description: This facility discharges to an unnamed tributary of Clarks Run (Outfalls 001, 003 and 004) and to an unnamed tributary of Little Totuskey Creek (Outfall 002).

Topographic Map Name: Tappahannock, Virginia (Outfall 001, 003, 004)

Haynesville, Virginia (Outfall 002)

Topographic Map Number: 147A (Outfall 001, 003, 004)

146B (Outfall 002)

See **Attachment 5** for topographic map.

12. Material Storage:

All wood preserving chemicals are stored in the covered treatment facility that has spill containment measures in accordance with RCRA Permit No. VAD003113750. The wood preserving chemicals are received as a concentrate and then diluted with treated, recycled groundwater. The diluted wood preserving chemicals are then stored in 18,000 to 22,000 gallon metered solution tanks until they are utilized. The wood preserving process generates no process wastewater. Any waste generated from the wood preserving process is collected in 90-day collection areas and transported to permitted hazardous waste facilities in accordance with the RCRA permit.

Wood Preservers, Inc. has five aboveground oil storage tanks with a combined capacity of 22,000 gallons. The facility operator is required to register all aboveground oil storage tanks with a capacity greater than 660 gallons once every five years in accordance with 9VAC25-91-10 et seq. The current Registration for Facility and Aboveground Storage Tank form was received at the DEQ Piedmont Regional Office on January 28, 2010, and March 1, 2010, under Permit No. 4018119. Since the facility stores less than 25,000 gallons of oil, it is not required to comply with the pollution prevention requirements, oil discharge contingency plan requirements or groundwater characterization study and monitoring well requirements contained within 9VAC25-91-10 et seq. Wood Preservers, Inc. is also regulated by the EPA and is required to have a Spill Prevention Control and Countermeasure Plan on hand at the site. The aboveground oil storage tanks are housed in a diked and covered fuel storage area to prevent soil and storm water contamination. In addition, the facility utilizes one aboveground storage tank to house used oil, which is delivered to a used oil recycler.

- Per agency guidance, storm water effluent data (reported on the DMRs) were compared against two times the acute criteria in the WQS. The comparative values (two times the acute water quality criteria) were calculated using a DEQ-created Excel spreadsheet called MSTRANT1, which requires inputs representing critical data for effluent and stream flows and quality, see **Attachment 8**. If pollutants are discharged at concentrations exceeding the comparative values, additional storm water evaluations (i.e. effluent toxicity testing) are required. Storm water effluent data (reported on EPA Form 2F) were compared against benchmark monitoring concentrations contained in the VPDES General Permit for Storm Water Associated with Industrial Activity, 9VAC25-151-10 et seq. If pollutants are discharged at concentrations exceeding the benchmark monitoring concentrations, modifications to the existing SWPPP are needed and/or more specific pollution prevention controls may be necessary. See **Attachment 8** for an evaluation of the pollutants of concern.

Table 2. Basis of Effluent Limitations – Outfall 001

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
Flow	NA	NA	NA	NA	NL
Chemical Oxygen Demand (COD)	2	NA	NA	NA	NL
Total Suspended Solids (TSS)	3	NA	NA	NA	NL
Oil & Grease	2	NA	NA	NA	NL
Total Recoverable Chromium	3	NA	NA	NA	NL
Total Recoverable Copper	3	NA	NA	NA	NL
Total Recoverable Arsenic	3	NA	NA	NA	NL
Hardness	2	NA	NA	NL	NA
pH	1	NA	NA	6.0 s.u.	9.0 s.u.

1. Water Quality Standards (9VAC25-260 et seq.)
2. Best Engineering Judgment (BEJ)
3. General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.)

Chemical Oxygen Demand: Guidance Memo 10-2003 (January 27, 2010 VPDES Permit Manual) recommends COD monitoring and reporting for all wood preserving operations. Consequently, COD monitoring and reporting has been carried forward from the 2006 permit reissuance with no changes.

Total Suspended Solids: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires TSS monitoring and reporting for facilities classified under Standard Industrial Classification (SIC) code 2421 (i.e. general sawmills and planing mills). As a result, TSS monitoring and reporting has been carried forward from the 2006 permit reissuance. However, TSS monthly average reporting has been dropped from the 2012 permit to reflect GM 10-2003.

Oil & Grease: Guidance Memo 10-2003 (January 27, 2010 VPDES Permit Manual) recommends oil & grease monitoring and reporting for all wood preserving operations. Consequently, oil & grease monitoring and reporting has been carried forward from the 2006 permit reissuance. However, oil & grease monthly average reporting has been dropped from the 2012 permit to reflect GM 10-2003.

Total Recoverable Chromium: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires total recoverable chromium monitoring and reporting for facilities classified under SIC code 2941 (i.e. wood preserving facilities). As a result, total recoverable chromium monitoring and reporting has been included in the 2012 permit, which is in conformance with the DEQ Piedmont Regional Office (PRO) staff decision dated 4/27/2010. This is a change from the 2006 permit, which required monitoring and reporting for dissolved chromium III and dissolved chromium VI. For future permit assessments, the total recoverable chromium analyses will be evaluated against the more stringent comparative value (i.e. the lesser of two times the acute dissolved chromium III WQS or two times the acute dissolved chromium VI WQS).

Total Recoverable Copper: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires total recoverable copper monitoring and reporting for facilities classified under SIC code 2941. Consequently, total recoverable copper monitoring and reporting has been included in the 2012 permit, which is in conformance with the DEQ Piedmont Regional Office (PRO) staff decision dated 4/27/2010. This is a change from the 2006 permit, which required monitoring

and reporting for dissolved copper. For future permit assessments, the total recoverable copper analyses will be evaluated against two times the acute dissolved copper WQS.

**Total Recoverable Arsenic:** The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires total recoverable arsenic monitoring and reporting for facilities classified under SIC code 2941. As a result, total recoverable arsenic monitoring and reporting has been included in the 2012 permit, which is in conformance with the DEQ Piedmont Regional Office (PRO) staff decision dated 4/27/2010. This is a change from the 2006 permit, which required monitoring and reporting for dissolved arsenic. For future permit assessments, the total recoverable arsenic analyses will be evaluated against two times the acute dissolved arsenic WQS.

**Hardness:** Guidance Memo 10-2003 (January 27, 2010 VPDES Permit Manual) recommends hardness monitoring and reporting for all wood preserving operations to aid in storm water effluent evaluations. Consequently, minimum hardness monitoring and reporting has been included in the 2012 permit in accordance with GM 10-2003. This is a change from the 2006 permit, which required monitoring and reporting for maximum hardness. Monitoring and reporting for minimum hardness will result in the development of more conservative storm water comparative values for future permit evaluations.

**pH:** A pH limitation of 6.0 to 9.0 standard units is assigned to all discharges into Class III Non-tidal Waters in accordance with the Water Quality Standards (WQS), 9VAC25-260-50.

**Other Parameters:** The permittee reported a detectable concentration (0.3914 mg/L) for total boron and a detectable concentration (1.5 mg/L) for sulfate. Acute water quality criteria do not exist for these parameters; therefore, further analyses were not performed. The permittee also reported a censored concentration (<50 µg/L) for 4-nitrophenol, which was greater than EPA's reporting limit of 10 µg/L. An acute water quality criterion does not exist for this parameter; therefore, further analysis was not performed.

All other parameters were reported below EPA Form 2C's reporting limits and/or below DEQ quantification levels (QLs) and therefore, are considered absent for the purposes of this evaluation.

**Whole Effluent Toxicity (WET):** The 2006 permit required the permittee to perform annual acute WET testing for Outfalls 001 and 002 using the most sensitive species, *Ceriodaphnia dubia*. All Outfall 001 acute WET testing results met the special condition endpoint of No Observed Adverse Effect Concentration (NOAEC) equal to 100%. Due to elevated levels (greater than established comparative value) of dissolved copper in the storm water effluent, DEQ staff recommends continued annual acute WET testing. This testing will be carried forward in the 2012 permit under the Storm Water Management Evaluation (Part I.C.1) in accordance with GM 10-2003, which is a change from the 2006 permit. To prevent backsliding, the January 27, 2010, VPDES Permit Manual language has been revised to include a permit endpoint of NOAEC equal to 100% instead of utilizing an LC<sub>50</sub> greater than or equal to 100% effluent endpoint. See **Attachment 9** for the Whole Effluent Toxicity (WET) memo.

Table 3. Basis of Effluent Limitations – Outfall 002

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
Flow	NA	NA	NA	NA	NL
Chemical Oxygen Demand (COD)	2	NA	NA	NA	NL
Total Suspended Solids (TSS)	3	NA	NA	NA	NL
Oil & Grease	2	NA	NA	NA	NL
Total Recoverable Chromium	3	NA	NA	NA	NL
Total Recoverable Copper	3	NA	NA	NA	NL

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
Total Recoverable Arsenic	3	NA	NA	NA	NL
Hardness	2	NA	NA	NL	NA
pH	1	NA	NA	6.0 s.u.	9.0 s.u.

1. Water Quality Standards (9VAC25-260 et seq.)
2. Best Engineering Judgment (BEJ)
3. General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.)

Chemical Oxygen Demand: Guidance Memo 10-2003 (January 27, 2010 VPDES Permit Manual) recommends COD monitoring and reporting for all wood preserving operations. As a result, COD monitoring and reporting has been carried forward from the 2006 permit reissuance with no changes.

Total Suspended Solids: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires TSS monitoring and reporting for facilities classified under Standard Industrial Classification (SIC) code 2421 (i.e. general sawmills and planing mills). Consequently, TSS monitoring and reporting has been carried forward from the 2006 permit reissuance. However, TSS monthly average reporting has been dropped from the 2012 permit to reflect GM 10-2003.

Oil & Grease: Guidance Memo 10-2003 (January 27, 2010 VPDES Permit Manual) recommends oil & grease monitoring and reporting for all wood preserving operations. As a result, oil & grease monitoring and reporting has been carried forward from the 2006 permit reissuance. However, oil & grease monthly average reporting has been dropped from the 2012 permit to reflect GM 10-2003.

Total Recoverable Chromium: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires total recoverable chromium monitoring and reporting for facilities classified under SIC code 2941 (i.e. wood preserving facilities). Consequently, total recoverable chromium monitoring and reporting has been included in the 2012 permit, which is in conformance with the DEQ Piedmont Regional Office (PRO) staff decision dated 4/27/2010. This is a change from the 2006 permit, which required monitoring and reporting for dissolved chromium III and dissolved chromium VI. For future permit assessments, the total recoverable chromium analyses will be evaluated against the more stringent comparative value (i.e. the lesser of two times the acute dissolved chromium III WQS or two times the acute dissolved chromium VI WQS).

Total Recoverable Copper: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires total recoverable copper monitoring and reporting for facilities classified under SIC code 2941. As a result, total recoverable copper monitoring and reporting has been included in the 2012 permit, which is in conformance with the DEQ Piedmont Regional Office (PRO) staff decision dated 4/27/2010. This is a change from the 2006 permit, which required monitoring and reporting for dissolved copper. For future permit assessments, the total recoverable copper analyses will be evaluated against two times the acute dissolved copper WQS.

Total Recoverable Arsenic: The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires total recoverable arsenic monitoring and reporting for facilities classified under SIC code 2941. Consequently, total recoverable arsenic monitoring and reporting has been included in the 2012 permit, which is in conformance with the DEQ Piedmont Regional Office (PRO) staff decision dated 4/27/2010. This is a change from the 2006 permit, which required monitoring and reporting for dissolved arsenic. For future permit assessments, the total recoverable arsenic analyses will be evaluated against two times the acute dissolved arsenic WQS.



**Hardness:** Guidance Memo 10-2003 (January 27, 2010 VPDES Permit Manual) recommends hardness monitoring and reporting for all wood preserving operations to aid in storm water effluent evaluations. As a result, minimum hardness monitoring and reporting has been included in the 2012 permit in accordance with GM 10-2003. This is a change from the 2006 permit, which required monitoring and reporting for maximum hardness. Monitoring and reporting for minimum hardness will result in the development of more conservative storm water comparative values for future permit evaluations.

**pH:** A pH limitation of 6.0 to 9.0 standard units is assigned to all discharges into Class III Non-tidal Waters in accordance with the Water Quality Standards (WQS), 9VAC25-260-50.

**Other Parameters:** The permittee reported a detectable concentration (0.0595 mg/L) for total boron and a detectable concentration (1.3 mg/L) for sulfate. Acute water quality criteria do not exist for these parameters; therefore, further analyses were not performed. The permittee also reported a censored concentration (<50 µg/L) for 4-nitrophenol, which was greater than EPA's reporting limit of 10 µg/L. An acute water quality criterion does not exist for this parameter; therefore, further analysis was not performed.

All other parameters were reported below EPA Form 2C's reporting limits and/or below DEQ quantification levels (QLs) and therefore, are considered absent for the purposes of this evaluation.

**Whole Effluent Toxicity (WET):** The 2006 permit required the permittee to perform annual acute WET testing for Outfalls 001 and 002 using the most sensitive species, *Ceriodaphnia dubia*. All Outfall 002 acute WET testing results met the special condition endpoint of No Observed Adverse Effect Concentration (NOAEC) equal to 100%. Due to elevated levels (greater than established comparative value) of dissolved copper in the storm water effluent, DEQ staff recommends continued annual acute WET testing. This testing will be carried forward in the 2012 permit under the Storm Water Management Evaluation (Part I.C.1) in accordance with GM 10-2003, which is a change from the 2006 permit. To prevent backsliding, the January 27, 2010, VPDES Permit Manual language has been revised to include a permit endpoint of NOAEC equal to 100% instead of utilizing an LC<sub>50</sub> greater than or equal to 100% effluent endpoint. See **Attachment 9** for the Whole Effluent Toxicity (WET) memo.

Table 4. Basis of Effluent Limitations – Outfalls 003 and 004

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
Flow	NA	NA	NA	NA	NL
Total Suspended Solids (TSS)	3	NA	NA	NA	NL
Hardness	2	NA	NA	NL	NA
pH	1	NA	NA	6.0 s.u.	9.0 s.u.

1. Water Quality Standards (9VAC25-260 et seq.)
2. Best Engineering Judgment (BEJ)
3. General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.)

**Total Suspended Solids:** The General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151 et seq.) requires TSS monitoring and reporting for facilities classified under Standard Industrial Classification (SIC) code 2499 (i.e. wood products not elsewhere classified; mulch). Consequently, TSS monitoring and reporting has been included in the 2012 permit reissuance for Outfalls 003 and 004.

**Hardness:** Minimum hardness monitoring and reporting has been included in the 2012 permit in order to aid in the development of comparative values for future permit evaluations.

pH: A pH limitation of 6.0 to 9.0 standard units is assigned to all discharges into Class III Non-tidal Waters in accordance with the Water Quality Standards (WQS), 9VAC25-260-50.

17. Antibacksliding Statement:  
All limitations in the proposed permit are the same or more stringent than the limitations in the 2006 permit.
18. Special Conditions:
  - a. Part I.B.1 – Process Wastewater Discharge Prohibited  
Rationale: 40 CFR 429 Subpart F prohibits the discharge of process wastewater pollutants for existing and new source pressure wood preserving treatment processes employing water borne inorganic salts. 40 CFR 429 Subpart K prohibits the discharge of process wastewater pollutants for existing and new source timber products processing procedures that include all or part of the following operations: bark removal, sawing, re-sawing, edging, trimming, planing, and machining. The term “process wastewater” specifically excludes material storage yard runoff (either raw material or processed wood storage).
  - b. Part I.B.2 – Notification Levels  
Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.
  - c. Part I.B.3 – Operation and Maintenance Manual Requirement  
Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9VAC25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved Operation and Maintenance manual ensures this.
  - d. Part I.B.4 – Materials Handling/Storage  
Rationale: 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.
  - e. Part I.B.5 – Drip Pad  
Rationale: 40 CFR 429 Subpart F prohibits the discharge of process wastewater pollutants for existing and new source pressure wood preserving treatment processes employing water borne inorganic salts. Ground water and surface water contamination can be minimized by containing the chemicals that will initially drip from the lumber following treatment.
  - f. Part I.B.6 – Water Quality Criteria Reopener  
Rationale: VPDES Permit Regulation, 9VAC25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.
  - g. Part I.B.7 – Compliance Reporting  
Rationale: Authorized by VPDES Permit Regulation, 9VAC25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.
  - h. Part I.B.8 – Reopeners  
Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this

permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

- i. Part I.B.9 – Closure Plan  
Rationale: Code of Virginia § 62.1-44.16 of the State Water Control Law. This condition establishes the requirement to submit a closure plan for the wastewater treatment facility if the treatment facility is being replaced or is expected to close.
- j. Part I.B.10 – Concept Engineering Report  
Rationale: § 62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.
- k. Part I.B.11 – EPA Form 2F Monitoring  
Rationale: State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.
- l. Parts I.C.1, I.C.2 and I.C.3 – Storm Water Management Conditions, Storm Water Management Evaluation, General Storm Water Special Conditions, and Storm Water Pollution Prevention Plan  
Rationale: VPDES Permit Regulation, 9VAC25-31-10 defines discharges of storm water from industrial activity. 9VAC25-31-120 requires a permit for these discharges. The Storm Water Pollution Prevention Plan requirements of the permit are derived from the VPDES general permit for discharges of storm water associated with industrial activity (VAR05), 9VAC25-151-10 et seq. VPDES Permit Regulation, 9VAC25-31-220 K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numerical effluent limits are infeasible or the practices are necessary to achieve effluent limits or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. VPDES Permit Regulation, 9VAC25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.
- m. Part II – Conditions Applicable to All VPDES Permits  
Rationale: VPDES Permit Regulation, 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

20. Changes to the Permit:

Permit Cover Page Changes:					
Item			Rationale		
Initial paragraph			Updated language to reflect current agency guidance, GM 10-2003.		
Signatory authority			Updated to reflect October 2008 DEQ Agency Statement Policy 2-09, “Delegations of Authority.”		
Parameter Changed	From	To	Rationale		
Receiving Stream	Unnamed Tributary to Clarks Run	Clarks Run, UT (001, 003, 004)	Updated receiving stream names in accordance with flow frequency memo and for clarity purposes. Included Outfalls 003 and 004 with the unnamed tributary to Clarks Run.		
	Unnamed Tributary to Totuskey Creek	Little Totuskey Creek, UT (002)			
Part I.A.1 Changes:					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Flow	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				
pH	No change		No change		No changes have been made to the monitoring and reporting for this effluent parameter.
Total Suspended Solids	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				
Chemical Oxygen Demand	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				

Hardness	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012. Updated daily maximum reporting to daily minimum reporting in accordance with January 27, 2010 VPDES Permit Manual, Section IN-5, page 31.
	NL maximum	NL minimum			
Chromium VI (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable chromium in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Arsenic (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable arsenic in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Chromium III (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable chromium in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Copper (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable copper in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Oil and Grease	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				
Total Recoverable Chromium	-----	NL maximum	-----	1 per 3 months	Monitoring and reporting for this parameter included in accordance with DEQ-PRO staff decision dated 4/27/2010 and to provide consistency with 9VAC25-151, General VPDES Permit for Discharges of Storm Water.
Total Recoverable Copper	-----	NL maximum	-----	1 per 3 months	Monitoring and reporting for this parameter included in accordance with DEQ-PRO staff decision dated 4/27/2010 and to provide consistency with 9VAC25-151, General VPDES Permit for Discharges of Storm Water.

Total Recoverable Arsenic	-----	NL maximum	-----	1 per 3 months	Monitoring and reporting for this parameter included in accordance with DEQ-PRO staff decision dated 4/27/2010 and to provide consistency with 9VAC25-151, General VPDES Permit for Discharges of Storm Water.
From	To		Rationale		
-----	I.A.1.a.(1)		Footnote added for clarification of monitoring and reporting requirements when no discharge has occurred.		
-----	I.A.1.a.(2)		Footnote added for clarification of a monitoring frequency of 1 per 3 months.		
I.A.1.b	I.A.1.b		Updated special condition reference and included a reference to Part I.C.2.		
I.A.1.c	I.A.1.c		No change.		
I.A.1.d	I.A.1.d		Updated language to reflect a 2.54 cm (1 inch) diameter round opening instead of a 12.54 cm (1 inch) diameter round opening.		
-----	I.A.1.e		Added language to further define monitoring and reporting requirements in addition to providing analytical results.		
Part I.A.2 Changes:					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Flow	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				
pH	No change		No change		No changes have been made to the monitoring and reporting for this effluent parameter.
Total Suspended Solids	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				
Chemical Oxygen Demand	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				

Hardness	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012. Updated daily maximum reporting to daily minimum reporting in accordance with January 27, 2010 VPDES Permit Manual, Section IN-5, page 31.
	NL maximum	NL minimum			
Chromium VI (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable chromium in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Arsenic (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable arsenic in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Chromium III (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable chromium in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Copper (dissolved)	NL monthly avg.	Removed	1 per 3 Months	Removed	Monitoring and reporting for this parameter removed in lieu of monitoring and reporting for total recoverable copper in accordance with DEQ-PRO staff decision dated 4/27/2010.
	NL maximum				
Oil and Grease	NL monthly avg.	NA monthly avg.	No change		Storm water monthly average reporting removed in accordance with DEQ-PRO staff decision dated 3/27/2012.
	No change to daily maximum reporting				
Total Recoverable Chromium	-----	NL maximum	-----	1 per 3 months	Monitoring and reporting for this parameter included in accordance with DEQ-PRO staff decision dated 4/27/2010 and to provide consistency with 9VAC25-151, General VPDES Permit for Discharges of Storm Water.
Total Recoverable Copper	-----	NL maximum	-----	1 per 3 months	Monitoring and reporting for this parameter included in accordance with DEQ-PRO staff decision dated 4/27/2010 and to provide consistency with 9VAC25-151, General VPDES Permit for Discharges of Storm Water.

Total Recoverable Arsenic	-----	NL maximum	-----	1 per 3 months	Monitoring and reporting for this parameter included in accordance with DEQ-PRO staff decision dated 4/27/2010 and to provide consistency with 9VAC25-151, General VPDES Permit for Discharges of Storm Water.
From	To		Rationale		
-----	I.A.2.a.(1)		Footnote added for clarification of monitoring and reporting requirements when no discharge has occurred.		
-----	I.A.2.a.(2)		Footnote added for clarification of a monitoring frequency of 1 per 3 months.		
I.A.2.b	I.A.2.b		Updated special condition reference and included a reference to Part I.C.2.		
I.A.2.c	I.A.2.c		No change.		
I.A.2.d	I.A.2.d		Updated language to reflect a 2.54 cm (1 inch) diameter round opening instead of a 12.54 cm (1 inch) diameter round opening.		
-----	I.A.2.e		Added language to further define monitoring and reporting requirements in addition to providing analytical results.		
Part I.A.3 Changes:					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Flow	-----	NL maximum	-----	1 per Year	Monitoring and reporting for maximum daily flow is included in the permit in accordance with January 27, 2010 VPDES Permit Manual, Section IN-5.
Total Suspended Solids	-----	NL maximum	-----	1 per Year	Monitoring and reporting for this effluent parameter included in the permit in accordance with 9VAC25-151, General VPDES Permit for Storm Water Discharges (Sector A, SIC Code 2499)
Hardness	-----	NL maximum	-----	1 per Year	Monitoring and reporting for this effluent parameter included in the permit based on BEJ. See Item 16 of this fact sheet for additional information.
pH	-----	6.0 s.u. minimum	-----	1 per Year	Effluent limitations for pH have been included in the permit based on the Water Quality Standards. See Item 16 of this fact sheet for additional information.
		9.0 s.u. maximum			
From	To		Rationale		
-----	I.A.3.a.(1)		Footnote added for clarification of monitoring and reporting requirements when no discharge has occurred.		



-----	I.A.3.a.(2)	Footnote added for clarification of a monitoring frequency of 1 per Year.
-----	I.A.3.b	Language included for clarity purposes.
-----	I.A.3.c	Language included in the permit in accordance with 9VAC25-151, General VPDES Permit for Storm Water Discharges.
-----	I.A.3.d	Language included in the permit based on BEJ. Even though this facility does not perform "wet decking," there is a potential for debris greater than 1 inch to leave the site.
-----	I.A.3.e	Language included in the permit defining monitoring and reporting requirements in addition to providing analytical results for clarity purposes.

**Part I.A.4 Changes:**

Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Flow	-----	NL maximum	-----	1 per Year	Monitoring and reporting for maximum daily flow is included in the permit in accordance with January 27, 2010 VPDES Permit Manual, Section IN-5.
Total Suspended Solids	-----	NL maximum	-----	1 per Year	Monitoring and reporting for this effluent parameter included in the permit in accordance with 9VAC25-151, General VPDES Permit for Storm Water Discharges (Sector A, SIC Code 2499)
Hardness	-----	NL maximum	-----	1 per Year	Monitoring and reporting for this effluent parameter included in the permit based on BEJ. See Item 16 of this fact sheet for additional information.
pH	-----	6.0 s.u. minimum	-----	1 per Year	Effluent limitations for pH have been included in the permit based on the Water Quality Standards. See Item 16 of this fact sheet for additional information.
		9.0 s.u. maximum			
From	To		Rationale		
-----	I.A.4.a.(1)		Footnote added for clarification of monitoring and reporting requirements when no discharge has occurred.		
-----	I.A.4.a.(2)		Footnote added for clarification of a monitoring frequency of 1 per Year.		
-----	I.A.4.b		Language included for clarity purposes.		
-----	I.A.4.c		Language included in the permit in accordance with 9VAC25-151, General VPDES Permit for Storm Water Discharges.		

-----	I.A.4.d	Language included in the permit based on BEJ. Even though this facility does not perform "wet decking," there is a potential for debris greater than 1 inch to leave the site.
-----	I.A.4.e	Language included in the permit defining monitoring and reporting requirements in addition to providing analytical results for clarity purposes.
<b>Special Condition Changes:</b>		
<b>From</b>	<b>To</b>	<b>Rationale</b>
I.B.1	I.B.1	No change.
I.B.2	I.B.2	No change.
I.B.3	I.B.3	Updated language to reflect current agency guidance (OWP&CA e-mail dated 4/3/2012).
I.B.4	I.B.4	Updated language to reflect January 27, 2010 VPDES Permit Manual.
I.B.5	I.B.5	No change.
I.B.6	I.B.8.b	Language incorporated into a new special condition (Part I.B.8).
I.B.7	I.B.6	Renumbered, no change.
I.B.8	I.B.7	Updated language to reflect January 27, 2010 VPDES Permit Manual. Language further revised according to Piedmont Regional Office procedure. Removed QLs for monitored only parameters and removed language regarding monthly average monitoring requirements.
I.B.9	I.B.8.a	Language incorporated into a new special condition (Part I.B.8).
I.B.10	I.B.9	Updated language to include a reference to the previously approved ground water monitoring plan dated 5/17/1995. Included references to the enforcement action amendments dated 12/21/2009 and 1/11/2011. Updated the language requiring the permittee to submit an approvable revised ground water monitoring plan. See Item 9 and Attachment 11 of this fact sheet for additional information.
I.B.11	Removed	Special condition removed in lieu of the permittee submitting an approvable revised ground water monitoring plan. See Item 9 and Attachment 11 of this fact sheet for additional information.
I.B.12	I.B.10	Updated language to reflect January 27, 2010 VPDES Permit Manual.
I.B.13	Removed	Special condition removed since permittee met the requirements of the condition (EPA Form 2C testing) on 1/11/2006.
-----	I.B.11	New; added special condition in accordance with DEQ-PRO staff decision dated 6/29/2010.
-----	I.B.12	New; added special condition requiring the permittee to perform EPA Form 2F testing for Outfalls 003 and 004 no later than 1 year following the effective date of the permit. Discharges from Outfalls 003 and 004 will be newly authorized with this permit reissuance.

<b>Other Changes:</b>		
<b>From</b>	<b>To</b>	<b>Rationale</b>
I.C.1	I.C.1.b I.C.1.e	Whole Effluent Toxicity (WET) testing specifications updated to reflect the January 27, 2010 VPDES Permit Manual and DEQ-CO staff recommendation. See Item 16 and Attachment 9 of this fact sheet for additional information. The 2006 WET testing endpoint of Acute NOAEC equal to 100% has been relocated to Part I.C.1.e of the 2012 permit to reflect the January 27, 2010 VPDES Permit Manual, Section IN-4.
I.C.2	Removed	Due to the intermittent nature of rainfall a “measurable storm event” (i.e. a storm event that results in an actual discharge from the site) may not necessarily produce enough runoff for one to collect split samples for both analytical and WET testing especially since storm water grab samples are to be collected during the first 30 minutes of discharge. In addition, the volume of storm water collected for WET testing is typically much greater than the volume for analytical testing. Therefore, there is the potential for the WET sample to be diluted, which may potentially hinder indentifying specific pollutant cause of a WET test hit. As a result, split sampling for WET testing has been removed from the 2012 permit in accordance with the January 27, 2010 VPDES Permit Manual.
I.C.3	Removed	Whole Effluent Toxicity (WET) testing specifications updated to reflect the January 27, 2010 VPDES Permit Manual and DEQ-CO staff recommendation. See Item 16 and Attachment 9 of this fact sheet for additional information.
I.C.4	Removed	Whole Effluent Toxicity (WET) testing specifications updated to reflect the January 27, 2010 VPDES Permit Manual and DEQ-CO staff recommendation. See Item 16 and Attachment 9 of this fact sheet for additional information.
I.C.5	I.C.1.b	The 2006 WET testing reporting schedule has been removed from the 2012 permit in lieu of submitting the WET testing results with the annual report due no later than February 10 <sup>th</sup> of each year in accordance with January 27, 2010 VPDES Permit Manual, Section IN-4.
I.D.1	I.C.1.a	Renumbered and updated language to reflect January 27, 2010 VPDES Permit Manual. Pollutant comparative values for Outfalls 001 and 002 added to reflect changes in current agency guidance. Revised pollutant screening list to include total recoverable copper in lieu of dissolved copper in accordance with DEQ-PRO staff decision dated 4/27/2010. Revised pollutant screening list to remove dissolved chromium VI since it screened below the comparative value. See Item 16 and Attachment 8 of this fact sheet for additional information.
I.D.2	I.C.1.e	Renumbered and updated language to reflect January 27, 2010 VPDES Permit Manual.
I.D.3	I.C.1.f	Renumbered and updated language to reflect January 27, 2010 VPDES Permit Manual.

I.E	I.C.2	Renumbered and updated language to reflect January 27, 2010 VPDES Permit Manual.
I.F	I.C.3	Renumbered and updated language to reflect January 27, 2010 VPDES Permit Manual.
I.G	I.C.4	Renumbered and updated language to reflect January 27, 2010 VPDES Permit Manual.
-----	I.C.5	Added sector specific (Sector A) benchmark monitoring in accordance with January 27, 2010 VPDES Permit Manual.
<b>Part II Changes:</b>		
<b>From</b>	<b>To</b>	<b>Rationale</b>
-----	II.A.4	New condition added to reflect change in laboratory accreditation requirements.

<b>Changes to 2012 Draft Permit in Response to Owner Comments:</b>		
<b>From</b>	<b>To</b>	<b>Rationale</b>
I.A.1.e	I.A.1.e	Language revised to clarify that the required information in Part I.A.1.e should be submitted as an attachment to the DMR in response to owner's comments.
I.A.2.e	I.A.2.e	Language revised to clarify that the required information in Part I.A.2.e should be submitted as an attachment to the DMR in response to owner's comments.
I.A.3.e	I.A.3.e	Language revised to clarify that the required information in Part I.A.3.e should be submitted as an attachment to the DMR in response to owner's comments.
I.A.4.e	I.A.4.e	Language revised to clarify that the required information in Part I.A.4.e should be submitted as an attachment to the DMR in response to owner's comments.
I.B.9	Removed	Ground water monitoring and reporting special condition removed from the permit in an effort to reduce duplicate monitoring and reporting. The DEQ RCRA Corrective Action Program oversees an extensive site-wide ground water monitoring and corrective action effort for this facility. See Item 9 and Attachment 11 of this fact sheet for additional information.
I.B.10	I.B.9	Renumbered; no change.
I.B.11	I.B.10	Renumbered; no change.
I.B.12	I.B.11	Renumbered; no change.

21. Variances/Alternate Limits or Conditions: None
22. Public Notice Information required by 9VAC25-31-280 B:

Comment Period:	Start Date:	To be determined
	End Date:	To be determined
	Published Dates:	To be determined
	Publishing Newspaper:	Northern Neck News

All pertinent information is on file and may be inspected or copied by contacting Emilee Adamson at:

Virginia Department of Environmental Quality (DEQ)  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060

Phone: 804-527-5072  
Fax: 804-527-5106  
Email: [Emilee.Adamson@deq.virginia.gov](mailto:Emilee.Adamson@deq.virginia.gov)

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment or may request copies of the documents from the contact person listed above.

Public Notice Comments: To be determined

23. Additional Comments:

Previous Board Action:

- On September 30, 1994, the Virginia Waste Management Board ("Board") issued Wood Preservers, Inc. a Consent Order regarding post-closure care for the hazardous waste surface impoundments closed as landfills at the facility. On September 25, 1998, the Board modified Appendix A of the 1994 Consent Order to incorporate groundwater corrective action requirements for the facility. On December 21, 2009 and January 11, 2011, the Board modified Appendix A of the post-closure care plan with an Enforcement Action – Amendment to Order by Consent. All terms of the 1994 Consent Order and all other portions of the modified Appendix A issued on September 25, 1998, remain in effect.

Staff Comments:

- The original application was received on 6/28/2010. Additional information was received on 8/11/2010, 9/28/2010, 10/7/2010, and 3/29/2012.
- The permittee has applied for e-DMR, but is awaiting DEQ processing of their registration.
- The permittee is not currently a Virginia Environmental Excellence Program (VEEP) participant.

- The annual permit maintenance fee was deposited on 8/23/2011.
- This permit reissuance is considered to be non-controversial. The staff believes that the proposed effluent limitations will maintain the Water Quality Standards adopted by the State Water Control Board (SWCB).
- The permittee submitted updated coordinates for Outfall 001 in conjunction with the permit reissuance application. As a result, the river mile for Outfall 001 has been updated from 3-XAQ000.52 to 3-XAQ000.40 to reflect the coordinate correction.
- The current VPDES Permit Manual states that facilities using fire retardant chemicals should also test for ammonia, total kjeldahl nitrogen (TKN), and phosphate (as phosphorus). Wood Preservers utilizes the fire retardant Dricon®, which is only suitable for wood products that are to be used indoors, protected from precipitation. Dricon® treated wood is kiln dried and stored on the drip pads in the wood preservation building until drippage has ceased, at which point the wood is moved to a covered storage shed. Due to the low potential of exposure to storm water, quarterly monitoring for these parameters is not required. Monitoring results provided with the reissuance application for these parameters are list below in Table 5.

Table 5. Additional Monitoring Results

Parameter	Outfall 001	Outfall 002
Ammonia (mg/L)	<0.1	0.11
Total Kjeldahl Nitrogen (mg/L)	1.6	1.4
Total Phosphorus (mg/L)	0.94	0.19

While Wood Preservers did show some nutrient concentrations in its storm water effluent data, the facility is not subject to the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia, 9VAC25-820-10 et seq. The Watershed General Permit does not apply to discharges of storm water per 9VAC25-820-10, definition of "facility."

## EPA Comments:

- EPA has waived the right to comment and/or object to the adequacy of this permit.

## VDH-ODW Comments:

- The Virginia Department of Health – Office of Drinking Water reviewed the permit application and had no objections. They have indicated that there are no public water supply intakes within 15 miles downstream of the discharge and/or activity.

## Owner Comments:

- Changes to the draft permit in response to owner comments have been documented in Section 20 of this fact sheet. Owner comments and DEQ staff responses are included in **Attachment 12**.

## Planning Conformance Statement:

- On 4/11/2012 the Water Resources Development Staff indicated that the discharge is in conformance with the existing planning documents for the area.

## 24. 303(d) Listed Segments (TMDL):

The unnamed tributaries were not assessed for any designated uses during the 2010 305(b)/303(d) Water Quality Assessment, therefore the streams are considered Category 3A waters ("No data are available within the data window of the current assessment to determine if any designated use is attained and the water was not previously listed as impaired.").

The facility was addressed in the Totuskey Creek Bacterial Total Maximum Daily Load (TMDL), which was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010, and the Upper Rappahannock River Shellfish TMDL, which was approved by the EPA on 8/10/2010. Since the facility is not permitted for fecal coliform control, it was determined that the facility does not contribute to the impairments and did not receive a bacteria wasteload allocation.

Wood Preservers was also included in the Chesapeake Bay TMDL, which addressed dissolved oxygen, chlorophyll a, and submerged aquatic vegetation (SAV) impairments in the mainstem Bay and its tidal tributaries. The TMDL was approved by the EPA on 12/29/2010. The discharge was included in the aggregated total nitrogen, total phosphorus, and total suspended solids (TSS) wasteload allocations for non-significant wastewater dischargers in the Rappahannock River mesohaline estuary (RPPMH). The nutrient allocations are administered through the Watershed Nutrient General Permit. The Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed, 9VAC25-40, does not regulate discharges of storm water; therefore, Wood Preservers is not subject to the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia, 9VAC25-820. Since the facility does not discharge process wastewaters, no further action is needed regarding nutrient control. The TSS allocations are considered aggregated and facilities with technology-based TSS limits are considered to be in conformance with the TMDL. Wood Preservers is not subject to any technology-based TSS requirements of the Clean Water Act; therefore, a TSS limitation has not been included in the 2012 permit. As long as the aggregate TSS loading (for all non-significant dischargers) is less than the aggregate TSS loading contained in the Watershed Implementation Plan the permit is considered to be consistent with the TMDL.

25. Summary of Attachments:

1. Flow Frequency Analysis Memo
2. Facility Flow Diagram
3. Outfall Location Map
4. Storm Water Management Practices Map
5. Topographic Map
6. Site Inspection Report
7. Effluent DMR Data
8. MSTRANTI Wasteload Allocations  
Water Quality Data Evaluation
9. Whole Effluent Toxicity (WET) Memo
10. NPDES Permit Rating Worksheet
11. VPDES Ground Water Monitoring Plan  
Post-Closure Care Plan  
RCRA Facility Investigation Report (Excerpts)  
"Hot Spot" Soil Remediation Plan Approval  
"Hot Spot" Soil Excavation Approval
12. Owner Comments & DEQ Staff Responses

# Attachment 1

## Flow Frequency Analysis Memo



# MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Piedmont Regional Office  
4949-A Cox Road Glen Allen, Virginia 23060

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**SUBJECT:** Flow Frequency Determination / 303(d) Status  
Wood Preservers, Inc. – VA0083127

**TO:** Andrew Hammond, P.E.

**FROM:** Jennifer Palmore, P.G.

**DATE:** April 9, 2012

The Wood Preservers, Inc. facility discharges via four outfalls near Warsaw, VA. Outfalls 001, 003, and 004 discharge to an unnamed tributary of Clarks Run and outfall 002 discharges to an unnamed tributary of Little Totuskey Creek. The outfalls are located at the following river miles:

001: 3-XAQ000.40  
002: 3-XQT000.72  
003: 3-XAQ000.22  
004: 3-XAQ000.11

Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

At the discharge point, both receiving streams are shown to be intermittent streams on the USGS Haynesville and Tappahannock 7 ½' Quadrangle topographic maps. The flow frequencies for intermittent streams are shown below.

## Outfalls 001 to 004:

1Q30 = 0.0 MGD	High Flow 1Q10 = 0.0 MGD
1Q10 = 0.0 MGD	High Flow 7Q10 = 0.0 MGD
7Q10 = 0.0 MGD	High Flow 30Q10 = 0.0 MGD
30Q10 = 0.0 MGD	HM = 0.0 MGD
30Q5 = 0.0 MGD	

The unnamed tributaries were not assessed for any designated uses during the 2010 305(b)/303(d) Water Quality Assessment, therefore the streams are considered Category 3A waters ("No data are available within the data window of the current assessment to determine if any designated use is attained and the water was not previously listed as impaired.")

The facility was addressed in the Totuskey Creek Bacterial TMDL, which was approved by the EPA on 2/19/2010 and by the SWCB on 9/30/2010, and the Upper Rappahannock River Shellfish TMDL, which was approved by the EPA on 8/10/2010. Since the facility is not permitted for fecal coliform control, it was determined that the facility does not contribute to the impairments and did not receive a bacteria wasteload allocation.

Wood Preservers was also included in the Chesapeake Bay TMDL, which addressed dissolved oxygen, chlorophyll a, and SAV impairments in the mainstem Bay and its tidal tributaries. The TMDL was approved by the EPA on 12/29/2010. The discharge was included in the aggregated total nitrogen, total phosphorus, and total suspended solids (TSS) wasteload allocations for non-significant wastewater dischargers in the Rappahannock River mesohaline estuary (RPPMH). The nutrient allocations are

administered through the Watershed Nutrient General Permit; the TSS allocations are considered aggregated and facilities with technology-based TSS limits are considered to be in conformance with the TMDL.

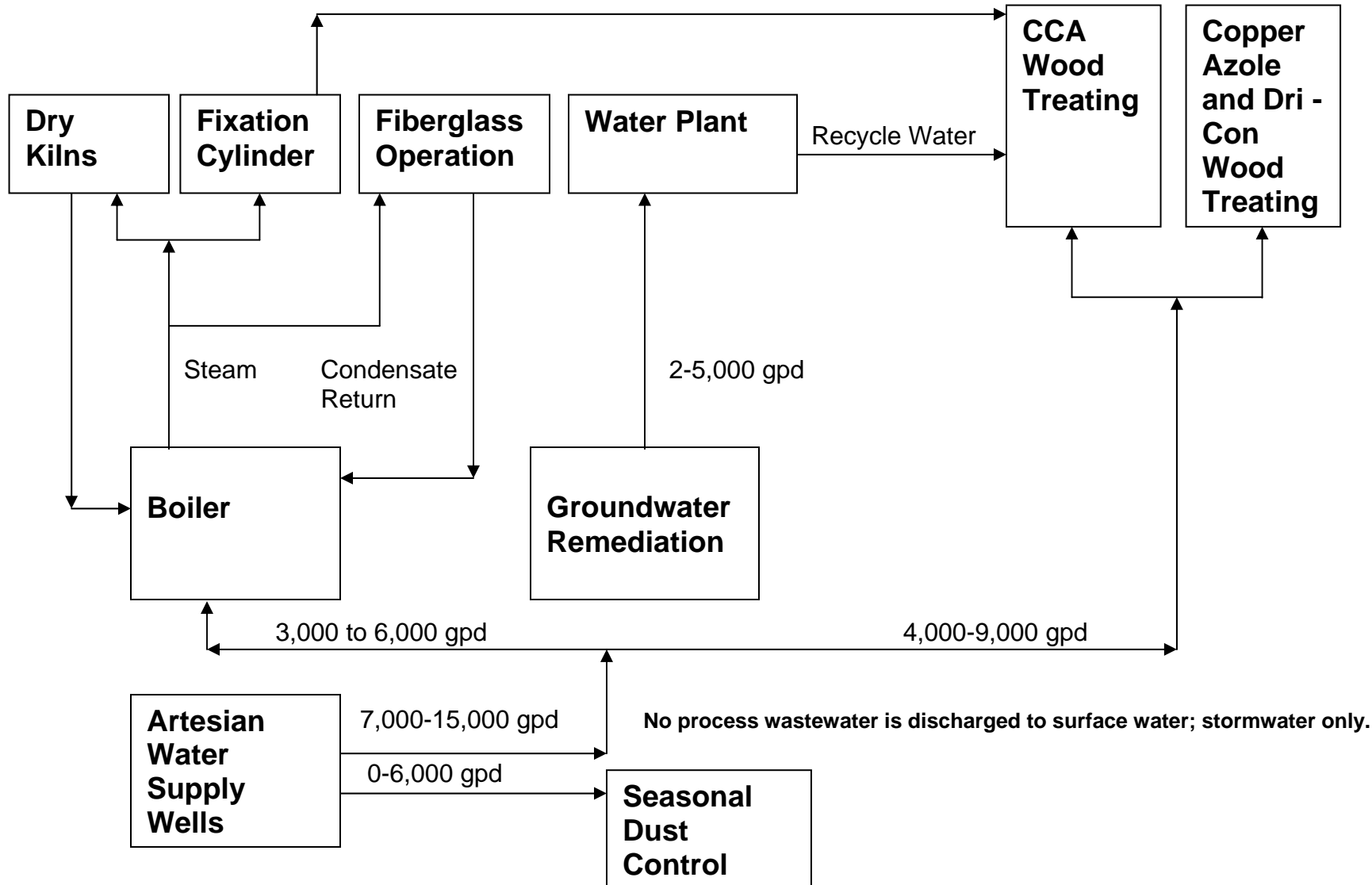
Due to their intermittent nature, the receiving streams are considered Tier 1 waters. Effluent data should be used to characterize the streams during low flow conditions.

If you have any questions concerning this analysis, please let me know.

# Attachment 2

## Facility Flow Diagram

**Wood Preservers, Inc.  
Warsaw, VA  
Estimated Water Use 2010**



# Attachment 3

Outfall Area Map

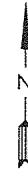
LEGEND

----- LEGAL BOUNDARIES (APPROXIMATE)  
 - - - - - EXISTING STREAM

ROUTE 800 MENDOKIN ROAD

OUTFALL DRAINAGE DIVIDE (TYP.)

AGRICULTURAL



WOOD-FUEL STORAGE

AGRICULTURAL

FLY ASH STORAGE

GRASS SWALE

MULCH AREA  
405728.99 SF  
9.31 ACRES

SOIL BERM

HEAVILY VEGETATED FOREST

APPROXIMATE LOCATION NATURAL DRAINAGE

OUTFALL 004  
(TO CLARKS RUN)

OUTFALL 003  
(TO CLARKS RUN)

OUTFALL 001  
(TO CLARKS RUN)

GRASS SWALE

NATURAL DRAINAGE WAY

GRASS FIELD

FORMER RESIDENTIAL PROPERTY

GRASS FIELD

OUTFALL DRAINAGE DIVIDE (TYP.)

HEAVILY VEGETATED EARTHEN CHANNEL

POWER COMPANY SUBSTATION

GRASS SWALE

GRASS SWALE

SEDIMENT TRAP/SWALE - SYMONS PETER TERM

(TO YUTUSKY CREEK)

OUTFALL 002

HEAVILY VEGETATED FOREST

TOTAL SITE: 142.03 ACRES



**MITSAK & ASSOCIATES, P.C.**

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(410) 337-5010  
(410) 337-5011 FAX

ENVIRONMENTAL MANAGEMENT CONSULTANTS

REV. NO.: 0	DRAWING DATE: 02/16/2012	DRAWING NO.: 01036D501
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**PROPERTY BOUNDARY WITH STORMWATER OUTFALL LOCATIONS**

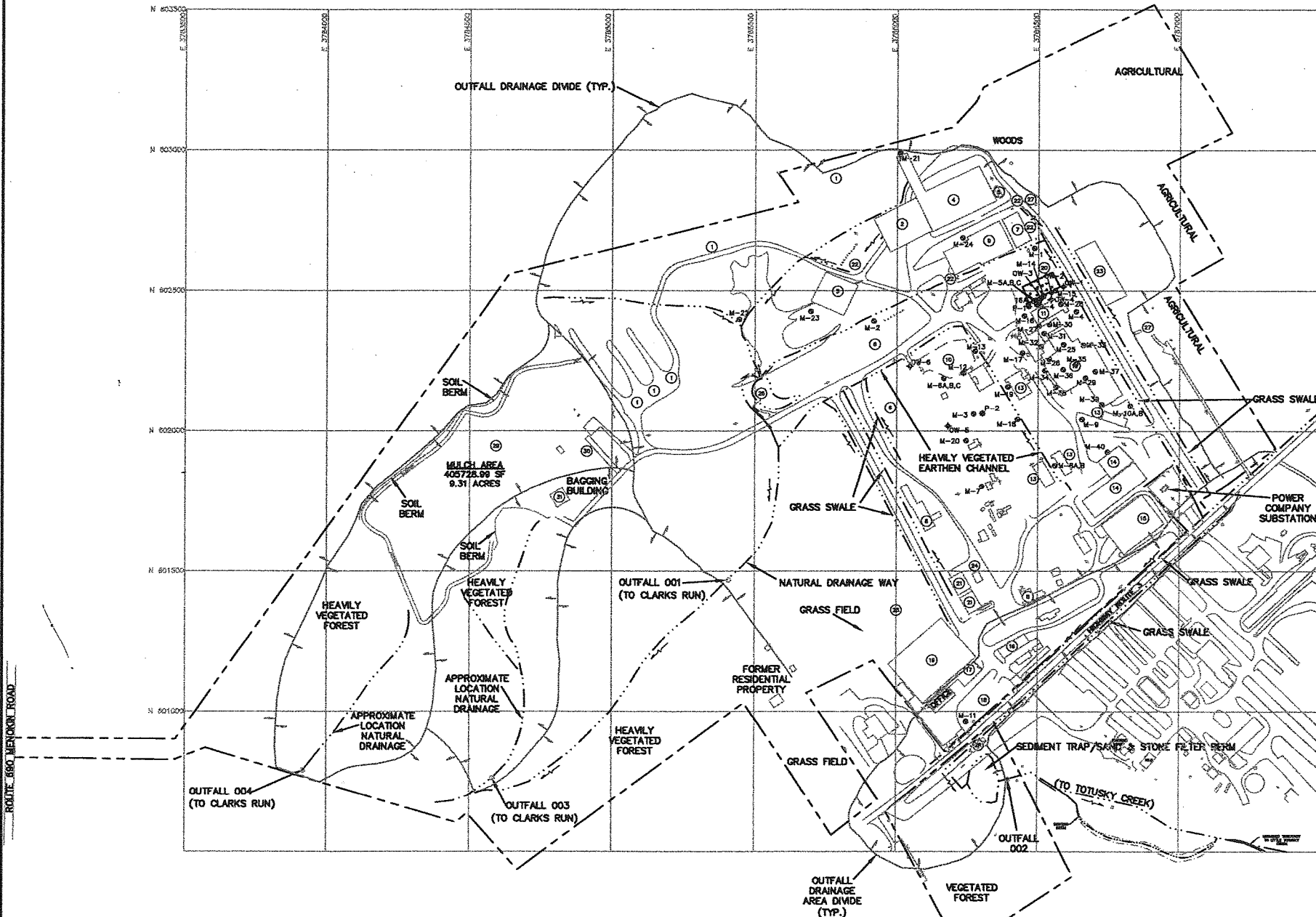
CLIENT:	WOOD PRESERVERS, INC.	PM:
LOCATION:	WARSAW, VIRGINIA	PE:
DESIGNED:	DETAILED:	PROJECT NO.: WPI.01036.RFI
		FIGURE: 1

SCALE - FEET  
0 200 400 600

NOTE:  
TOPOGRAPHIC INFORMATION IS BASED ON AERIAL TOPOGRAPHY FLWVN IN APRIL 1993 AND APRIL 1998 BY  
PREDMONT AERIAL SURVEYS. HORIZONTAL AND VERTICAL CONTROL, BASED ON VIRGINIA STATE PLANE  
COORDINATE SYSTEM AND USGS DATUM AS SURVEYED BY STERLIN L. HEADLY, R.L.S.

# Attachment 4

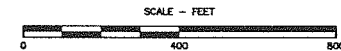
## Storm Water Management Practices Map



- LEGEND**
- — — — — OUTFALL DRAINAGE AREA DIVIDE
  - - - - - LEGAL BOUNDARIES (APPROXIMATE)
  - MONITORING WELL
  - ◆ OBSERVATION WELL
  - ⊙ EXTRACTION WELL
1. CCA TREATED POLES STORAGE YARD - POLES HAVE BEEN THROUGH FIXATION CHAMBER
  2. SHED FOR TREATED/UNTREATED MATERIAL COVERED - ASPHALT FLOOR
  3. COVERED CCA AND COPPER AZOLE TREATED WOOD STORAGE - CONCRETE FLOOR
  4. TREATING PLANT AND FIXATION CHAMBER UNDER ROOF - CONCRETE FLOOR AND LINER
  5. BIOLOGICAL SCRUBBER - NOT IN SERVICE
  6. BARKY WOOD STORAGE
  7. BIOLOGICAL TREATMENT SYSTEM (ICB) - NO SW DISCHARGE, NOT IN SERVICE
  8. UNTREATED WOOD PRODUCTION AREA
  9. FIRE RETARDANT TREATED STORAGE - COVERED CONCRETE FLOOR
  10. CLOSED RCRA EVAPORATION POND
  11. OLD TANK FARM - PARTIALLY CLOSED - CONCRETE
  12. COVERED STORAGE AREA - CONCRETE FLOOR
  13. DRY KILN COVERED AND CONCRETE FLOOR
  14. COVERED WOOD STORAGE SHEDS - DIRT FLOOR - SMALL AMOUNT OF TREATED MATERIAL HAS BEEN STORED ALONG EDGES OF THESE BUILDINGS
  15. LUMBER STORAGE - DIRT FLOOR - SMALL AMOUNT OF CCA TREATED LUMBER STORED OUTSIDE OF SHED
  16. TREATED STORAGE - COVERED - DIRT FLOOR
  17. CCA STORAGE - NOT COVERED
  18. EMPLOYEE PARKING LOT - STONE
  19. CCA AND COPPER AZOLE TREATED LUMBER STORAGE SHED - COVERED - DIRT FLOOR
  20. CLOSED RCRA SURFACE IMPOUNDMENT
  21. MAINTENANCE SHOP
  22. EMERGENCY SPILL CONTAINMENT STATIONS (4)
  23. FIBERGLASS PRODUCTION BUILDING
  24. FUEL STORAGE AREA - DIKED AND COVERED
  25. VINYL STORAGE AREA
  26. STORMWATER SYSTEM & SEDIMENTATION POND
  27. ARTESIAN WELL PUMP HOUSE
  28. TRUCK SCALE
  29. MULCH AREA
  30. TRUCK UNLOADING
  31. BAGGING BUILDING

<b>MITSAK &amp; ASSOCIATES, P.C.</b> ENVIRONMENTAL MANAGEMENT CONSULTANTS 808 FATHERLEDGE ROAD BALTIMORE, MARYLAND 21112 CONSULT@JHMGATT.NET (410) 221-6810 (410) 221-6811 FAX		REV. NO.: 1	
		DRAWING DATE: 03/13/2012	
DRAWING NO.: 010368007		PROJECT NO.: WPI.01036.RFI	
<b>STORMWATER MANAGEMENT PRACTICES</b>			
CLIENT: WOOD PRESERVERS, INC.		PM:	
LOCATION: WARSAW, VIRGINIA		PE:	
DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
		2	

NOTE:  
TOPOGRAPHIC INFORMATION IS BASED ON AERIAL TOPOGRAPHY  
FLOW IN APRIL 1983 AND APRIL 1984 BY INSTANT AERIAL  
SURVEYS. HORIZONTAL AND VERTICAL CONTROL BASED ON  
VIRGINIA STATE PLANE COORDINATE SYSTEM AND UTM  
DATUM AS SURVEYED BY STERLIN L. HEADLEY, R.L.S.



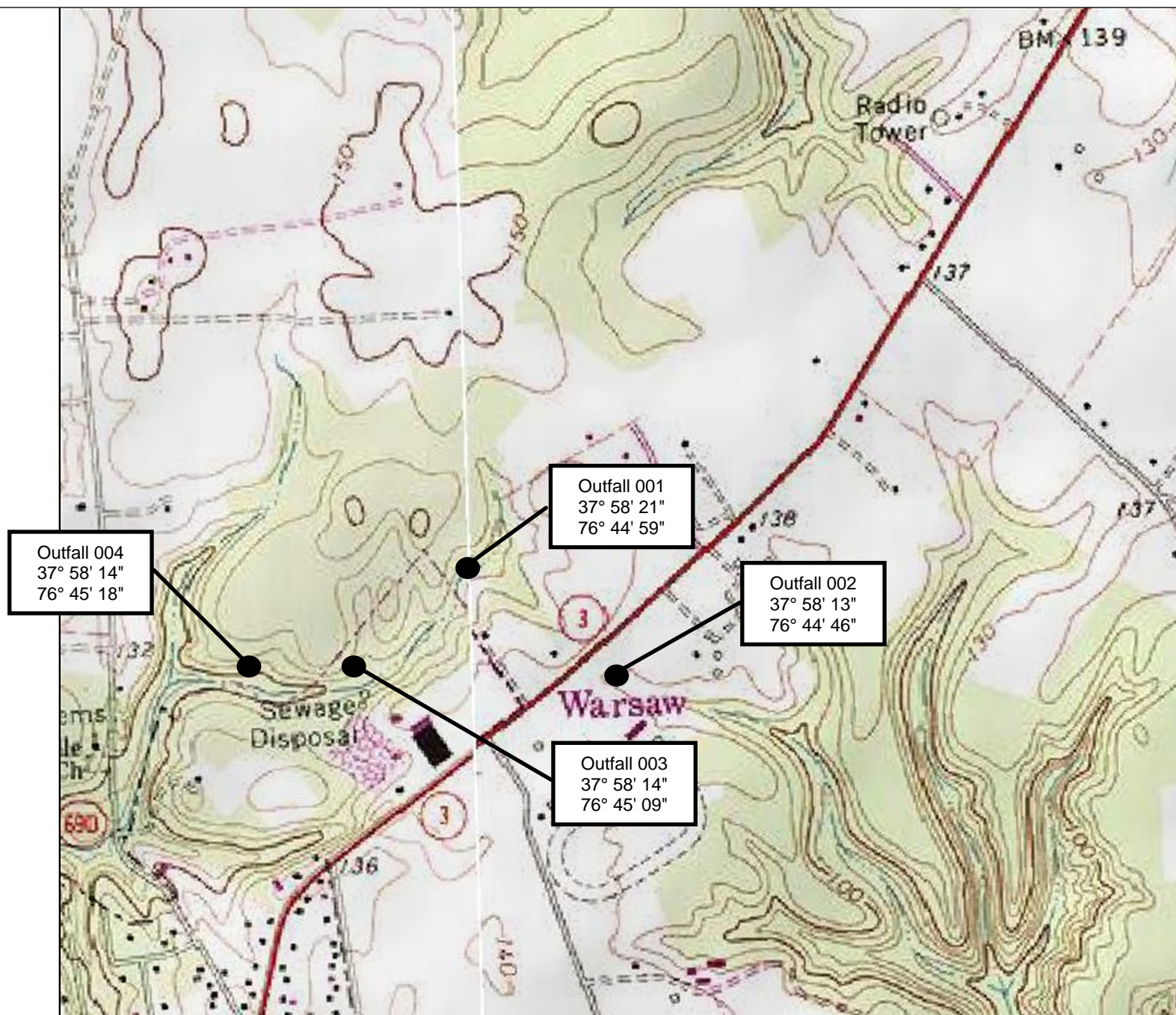


# Attachment 5

Topographic Map

# Map Export

## Legend



Feet  
0 200 400 600 800  
Map Scale: 1:12,000



# Attachment 6

## Site Inspection Report



## MEMORANDUM

### DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Regional Office*

4949-A Cox Road

Glen Allen, VA 23060

804/527-5020

**SUBJECT:** Wood Preservers Inc., VA0083127 Site Visit  
**TO:** File  
**FROM:** Emilee Carpenter – PRO  
**DATE:** September 10, 2010  
**COPIES:** File

I performed an announced site visit September 1, 2010 at Wood Preservers, Inc. John Mitsak, consultant engineer and Morgan Wright, President of Wood Preservers, Inc. provided a thorough tour of process operation and site drainage. The facility appeared to be in typical operating mode at the time of my visit.

The plant is engaged in the preservation of wood products using pressure treatment processes. The processes use inorganic waterborne preservatives including copper azole, copper chromated arsenic (CCA), and boron. In addition to wood preservation, there is a fiberglass manufacturing facility and a mulching operation. There is no wastewater or storm water associated with the fiberglass operation and the mulching operation does not require permitting. Consequently, the permit exclusively addresses storm water associated with wood preservation.

Two thirds of the site is dedicated to raw wood processing. The processing involves no chemicals but does generate sediment for which there are several onsite BMPs. Gravel berms have been constructed perpendicular to the flow gradient to remove sediment and dissipate energy (Images 1 and 2). The processed raw wood is dried using steam inside dry kilns. A wood fired boiler generates the steam. Sawdust used as fuel for the boiler is harvested from onsite mill work and purchased from external vendors. The sawdust is piled inside a fenced area to minimize losses.

Previous activity at the site is now being remediated through a RCRA clean up. In 1991 the Resource Conservation and Recovery Act (RCRA) required that all drip pads have secondary containment. In response to the new legislation, Wood Preservers Inc. changed its process and built a new facility to house all of the preservation activities. Creosote was used at the facility until 2004. The remediation effort addresses a closed creosote wastewater impoundment and a spray evaporation pond and the resultant contamination from releases from the units (Image 3). The DEQ RCRA program currently oversees an extensive groundwater monitoring effort. In accordance with the DEQ groundwater

program decision in 1995 and 1999, the staff believes this monitoring adequately addresses groundwater protection measures for the uncovered wood storage area.

All wood preservation activity now occurs in a single building. The building is designed with secondary containment for 113% of all chemical storage in the building. The foundation of the building is engineered to prevent leakage in accordance US EPA 40 CFR 265 Subpart W regulations and the concrete is coated with an impermeable resin. Treated wood is placed on drip pads to collect chemical residue. The pressurized treatment cylinders are designed and operated to minimize dripping (Image 4). The chemical supplier provides an electronic control system which monitors the chemical volume injected in the cylinder. After the pressurization phase, a vacuum is drawn on the cylinder to reclaim any chemical not absorbed in the wood. There are established ratios for how much chemical should be reclaimed to prevent dripping and the ratio is monitored by the operator. The drip pads drain to a central sump; liquid in the sump is recycled back into the process and any accumulated sludge is managed as a hazardous waste.

Round stock treated with CCA undergoes an accelerated fixation process, which uses heat, steam and the organics in the wood to accelerate fixation of the copper chromated arsenic. The CCA treated wood is inserted into a cylinder for the fixation process which requires approximately 4-5 hours (Image 5). The cylinder is located outdoors, but it opens up to the wood preservation building. The treated wood is loaded into the cylinder from inside the building, such that the loading process is undercover. The products that have undergone fixation are stored outdoors and exposed to storm water. Products treated with copper azole (primarily lumber) and Dricon (a boron-based fire retardant) can not undergo accelerated fixation. Consequently, 95-98% of copper azole treated lumber and boron treated products are stored under cover (Images 6 and 7). The remaining 2-5% of the treated product is stored outdoors and exposed to storm water. The fire retardant DriCon is only suitable for wood products that are to be used indoors, protected from precipitation. DriCon treated wood is kiln dried and stored on the drip pads in the wood preservation building until drippage has ceased, at which point the wood is moved to a covered storage shed.

In addition to onsite BMPs that minimize sediment in the storm water, Wood Preservers, Inc. installed a storm water treatment system called StormFix in 2005 (Image 8). The system receives drainage from approximately 35 acres, including the majority of the area used for outdoor storage of treated round stock. The drainage is directed to a pond with a synthetic liner. The pond is designed to contain a 10 year storm event and allows for settling of sediment. The discharge from the pond passes through a chemical treatment unit, which uses metal filings to remove arsenic, chromium and copper. The discharge from the treatment unit has been monitored over the last permit term to evaluate its effectiveness. Discharge from the StormFix system ultimately discharges at Outfall 001 and is monitored at that point with the remainder of the Outfall 001 drainage. Mr. Wright would like to discontinue monitoring at the outlet of the StormFix, as the demonstration of effectiveness has been adequately addressed.

There are two storm water outfalls on the site. Outfall 001 (Image 9) represents 90% of the drainage and Outfall 002 (Image 10) drains the remaining 10%. Outfall 002 drains untreated wood storage and a gravel parking lot, whereas Outfall 001 drains all of the



treated wood storage and the remainder of the site. The primary pollutant of concern at Outfall 002 is sediment, while the primary pollutants of concern at Outfall 001 are copper, chromium and arsenic. The receiving streams at both outfalls are dry ditches (ephemeral streams) that lead to Clarks Run (001) and Totuskey Creek (002). There were no visual signs of adverse impact from the discharge at either outfall.

The mulching operation represents a separate drainage not covered under Outfalls 001 or 002. It was determined during the last permit reissuance that this activity is not covered under the VAR05 Industrial Storm Water General Permit and, therefore, the storm water does not require permitting. The mulch piles appear to be well contained. However, some drainage is piped through a soil berm and has eroded a hole at its discharge which is approximately 4 feet in diameter. Mr. Wright and Mr. Mitsak discussed filling the hole with rip rap to dissipate the energy and minimize further erosion. It may be beneficial to remove the pipe and open up the soil berm such that sheet flow passes through the berm rather than a direct pipe discharge.



Image 1. Outfall 002 Gravel Berm.



Image 2. Outfall 001 Gravel Berm.



Image 3. RCRA creosote impoundment closure.



Image 4. Pressure treatment cylinders.



Image 5. Accelerated fixation chamber.



Image 6. Covered storage shed.



Image 7. Covered storage shed.



Image 8. Lined Storm Water Pond with StormFix.





Image 9. Outfall 001



Image 10. Outfall 002.



Image 11. Mulching operation.

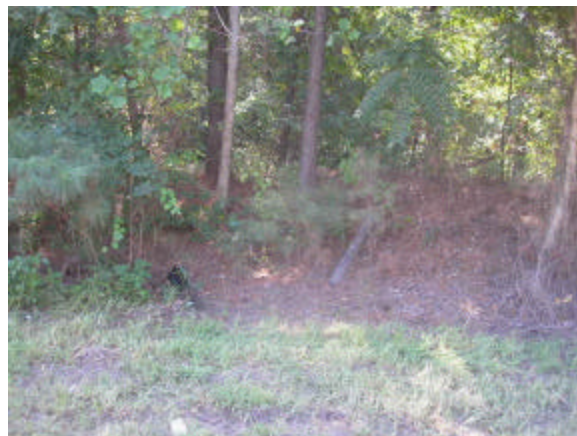


Image 12. Berm and piped discharge.



# Attachment 7

Effluent DMR Data

Facility Name: Wood Preservers Incorporated  
 Permit No: VA0083127  
 Outfall: 001

DMR Date	Flow (MGD)		pH (s.u.)		TSS (mg/L)		COD (mg/L)		Hardness (mg/L as CaCO3)		Chromium VI, diss. (µg/L)	
	Avg.	Max.	Min.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
4/10/06	0.242	1.078	7.4	7.4	13	13	32	32	33	33	10	10
7/10/06	0.342	1.383	7.1	NULL	89	NULL	63	NULL	60	NULL	<10	NULL
10/10/06	0.655	1.241	6.4	6.86	117	220	61	82	48	72	<10	<10
1/10/07	0.605	1.595	6.04	NULL	120	120	57	57	52.6	52.6	<10	<10
4/10/07	0.565	1.347	7.04	7.04	57	57	38	38	32	32	<10	<10
7/10/07	0.293	1.418	7.1	7.1	29	29	26	26	43.9	43.9	<10	<10
10/10/07	0.0467	0.674	7.08	7.08	38	38	68	68	42.5	42.5	<10	<10
1/10/08	0.756	1.241	6.3	6.3	47	47	58	58	31.8	31.8	NULL	NULL
4/10/08	0.579	0.78	6.72	6.72	90	90	49.6	49.6	43.8	43.8	<10	<10
7/10/08	0.87	2.34	6.25	6.25	20.8	20.8	44.1	44.1	31	31	<5	<5
10/10/08	1.2	1.6	6.27	6.85	40.7	55.8	41.7	52.6	29.1	31.7	<5.0	<5.0
1/10/09	0.75	1.38	6.08	6.08	18.9	18.9	44.1	44.1	37.3	37.3	<5.0	<5.0
4/10/09	0.38	0.85	6.72	6.72	124	124	63.2	63.2	49.2	49.2	<5.0	<5.0
7/10/09	0.5	1.13	7.16	7.16	104	104	44.3	44.3	45.2	45.2	<5.0	<5.0
10/10/09	0.89	1.7	6.79	7.22	21.2	21.2	45	45	25.1	25.1	<5.0	<5.0
1/10/10	0.91	2.62	6.67	6.67	29.4	29.4	63.9	63.9	22.5	22.5	8	8
4/10/10	0.73	1.52	6.8	6.8	17.4	17.4	30.6	30.6	26.3	26.3	<5	<5
<b>Min.</b>	0.0		<b>10th %</b>	6.3			<b>Min.</b>	23				
<b>Avg.</b>	0.6		<b>90th %</b>	7.2			<b>Avg.</b>	38				
<b>Max.</b>	1.2						<b>Max.</b>	60				

Facility Name: Wood Preservers Incorporated  
 Permit No: VA0083127  
 Outfall: 001

DMR Date	Chromium III, diss. (µg/L)		Arsenic, diss. (µg/L)		Copper, diss. (µg/L)		Oil & Grease (mg/L)	
	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
4/10/06	56	56	24	24	30	30	<QL	<QL
7/10/06	13	NULL	29	NULL	27	NULL	<5	NULL
10/10/06	<10	<10	17	17	23	24	<5	<5
1/10/07	<10	<10	20	20	17	17	<5	<5
4/10/07	49	49	38	38	22	22	<5	<5
7/10/07	19	19	15	15	19	19	<10	<10
10/10/07	17	17	29	29	28	28	<10	<10
1/10/08	26	26	32	32	27	27	<10	<10
4/10/08	<10	<10	19	19	31	31	10	10
7/10/08	18	18	16	16	17	17	<10	<10
10/10/08	15.5	21	20	27	21.5	28	<10	<10
1/10/09	31	31	18	18	27	27	<10	<10
4/10/09	<10	<10	12	12	<10	<10	<10	<10
7/10/09	<10	<10	18	18	19	19	<10	<10
10/10/09	22	22	33	33	26	26	<10	<10
1/10/10	12.7	12.7	29.3	29.3	29.6	29.6	<10	<10
4/10/10	25.1	25.1	32.6	32.6	19.4	19.4	<10	<10

Facility Name: Wood Preservers Incorporated  
 Permit No: VA0083127  
 Outfall: 002

DMR Date	Flow (MGD)		pH (S.U.)		TSS (mg/L)		COD (mg/L)		Hardness (mg/L as CaCO3)		Chromium VI, diss. (µg/L)	
	Avg.	Max.	Min.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
4/10/06	0.022	0.099	7.25	7.25	12	12	22	22	11	11	<QL	<QL
7/10/06	0.031	0.127	6.53	NULL	22	NULL	21	NULL	11	NULL	<10	NULL
10/10/06	0.06	0.114	6.06	6.36	15	15	51	51	31	31	<10	<10
1/10/07	0.055	0.146	6.98	X	21	21	18	18	10.4	10.4	<10	<10
4/10/07	0.052	0.124	6.45	6.45	21	21	26	26	14.6	14.6	<10	<10
7/10/07	0.027	0.13	6.38	6.38	39	39	36	36	16.4	16.4	<10	<10
10/10/07	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1/10/08	0.114	0.114	7.28	7.28	33.5	33.5	<10	<10	17.4	17.4	NULL	NULL
4/10/08	0.072	0.072	7.29	7.29	38.8	38.8	35.6	35.6	21.3	21.3	<10	<10
7/10/08	0.14	0.21	7.21	7.21	12	12	29.1	29.1	11.3	11.3	<5	<5
10/10/08	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1/10/09	0.09	0.13	6.98	6.98	42.9	42.9	32.3	32.3	12.8	12.8	<5.0	<5.0
4/10/09	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
7/10/09	0.06	0.1	6.65	6.65	23.4	23.4	31.6	31.6	10.4	10.4	<20	<20
10/10/09	0.15	0.16	6.72	6.72	18.6	18.6	27.5	27.5	13.4	13.4	<5.0	<5.0
1/10/10	0.12	0.24	6.25	6.25	25.8	25.8	20.8	20.8	13	13	<5	<5
4/10/10	0.047	0.049	6.2	6.2	73.6	73.6	23	23	16.3	16.3	<5	<5
<b>Min.</b>	0.0		<b>10th %</b>	6.3			<b>Min.</b>	10				
<b>Avg.</b>	0.07		<b>90th %</b>	7.3			<b>Avg.</b>	15				
<b>Max.</b>	0.15						<b>Max.</b>	31				

Facility Name: Wood Preservers Incorporated  
 Permit No: VA0083127  
 Outfall: 002

DMR Date	Chromium III, diss. (µg/L)		Arsenic, diss. (µg/L)		Copper, diss. (µg/L)		Oil & Grease (mg/L)	
	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
4/10/06	32	32	14	14	24	24	<QL	<QL
7/10/06	<10	NULL	12	NULL	20	NULL	<5	NULL
10/10/06	10	10	10	10	20	20	<5	<5
1/10/07	<10	<10	12	12	<10	<10	<5	<5
4/10/07	<10	<10	<10	<10	15	15	<5	<5
7/10/07	<10	<10	<10	<10	21	21	<5	<5
10/10/07	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1/10/08	<10	<10	12	12	17	17	<10	<10
4/10/08	<10	<10	<10	<10	16	16	<10	<10
7/10/08	<10	<10	<10	<10	14	14	<10	<10
10/10/08	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1/10/09	<10.0	<10.0	<10.0	<10.0	18	18	<10	<10
4/10/09	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
7/10/09	<10	<10	<10	<10	15	15	<10	<10
10/10/09	<10.0	<10.0	14	14	15	15	<10.0	<10.0
1/10/10	<10	<10	<10	<10	10.3	10.3	<10	<10
4/10/10	<10	<10	<10	<10	12	12	<10	<10

# Attachment 8

MSTRANTI Wasteload Allocations  
Water Quality Data Evaluation

# MSTRANTI DATA SOURCE REPORT

VA0083127 – Wood Preservers, Inc.

Stream Information	
Mean Hardness	Effluent data utilized to characterize this parameter in accordance with Flow Frequency Memo.
90% Temperature (annual)	Not applicable to this evaluation.
90% Temperature (wet season)	
90% Maximum pH	Effluent data utilized to characterize this parameter in accordance with Flow Frequency Memo.
10% Maximum pH	Not applicable to this evaluation.
Tier Designation	Flow Frequency Memo
Stream Flows	
All Data	Maximum monthly average storm water flow reported on monthly discharge monitoring reports (utilized to calculate two times the acute water quality criteria for storm water evaluations).
Mixing Information	
All Data	Intermittent receiving stream. Stream flow solely comprised of storm water flow from facility.
Effluent Information	
Mean Hardness	Calculated from data reported on monthly discharge monitoring reports. <sup>(1)</sup>
90% Temperature (annual)	Not applicable to this evaluation.
90% Temperature (wet season)	
90% Maximum pH	Calculated from data reported on monthly discharge monitoring reports.
10% Maximum pH	Not applicable to this evaluation.
Discharge Flow	Maximum monthly average storm water flow reported on monthly discharge monitoring reports.

- (1) The mean hardness for Outfall 002 was calculated to be 15 mg/L as calcium carbonate. However, the water quality criteria, 9VAC25-260-140, establish a minimum hardness of 25 mg/L as calcium carbonate for use in calculating the criteria and, in turn, the wasteload allocations. Even though a mean hardness of 15 mg/L as calcium carbonate was entered into MSTRANTI, the spreadsheet automatically adjusts the final wasteload allocations to reflect a minimum hardness of 25 mg/L as calcium carbonate.

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Wood Preservers, Inc.

Permit No.: VA0083127

Receiving Stream: Clarks Run, UT (001)

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	38 mg/L	1Q10 (Annual) =	1.2 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	38 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	1.2 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	1.2 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	7.2 SU	1Q10 (Wet season) =	1.2 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.2 SU
10% Maximum pH =	6.3 SU	30Q10 (Wet season) =	1.2 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	6.3 SU
Tier Designation (1 or 2) =	1	30Q5 =	1.2 MGD			Discharge Flow =	1.2 MGD
Public Water Supply (PWS) Y/N? =	N	Harmonic Mean =	1.2 MGD				
Trout Present Y/N? =	N						
Early Life Stages Present Y/N? =	N						

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	2.0E+03	--	--	--	--	--	--	--	--	--	--	na	2.0E+03
Acrolein	0	--	--	na	9.3E+00	--	--	na	1.9E+01	--	--	--	--	--	--	--	--	--	--	na	1.9E+01
Acrylonitrile <sup>C</sup>	0	--	--	na	2.5E+00	--	--	na	5.0E+00	--	--	--	--	--	--	--	--	--	--	na	5.0E+00
Aldrin <sup>C</sup>	0	3.0E+00	--	na	5.0E-04	6.0E+00	--	na	1.0E-03	--	--	--	--	--	--	--	--	6.0E+00	--	na	1.0E-03
Ammonia-N (mg/l) (Yearly)	0	2.95E+01	8.75E+00	na	--	5.91E+01	1.75E+01	na	--	--	--	--	--	--	--	--	--	5.91E+01	1.75E+01	na	--
Ammonia-N (mg/l) (High Flow)	0	2.95E+01	8.75E+00	na	--	5.91E+01	1.75E+01	na	--	--	--	--	--	--	--	--	--	5.91E+01	1.75E+01	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	8.0E+04	--	--	--	--	--	--	--	--	--	--	na	8.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	6.8E+02	3.0E+02	na	--	--	--	--	--	--	--	--	--	6.8E+02	3.0E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene <sup>C</sup>	0	--	--	na	5.1E+02	--	--	na	1.0E+03	--	--	--	--	--	--	--	--	--	--	na	1.0E+03
Benzidine <sup>C</sup>	0	--	--	na	2.0E-03	--	--	na	4.0E-03	--	--	--	--	--	--	--	--	--	--	na	4.0E-03
Benzo (a) anthracene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (b) fluoranthene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (k) fluoranthene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (a) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Bis(2-Chloroethyl) Ether <sup>C</sup>	0	--	--	na	5.3E+00	--	--	na	1.1E+01	--	--	--	--	--	--	--	--	--	--	na	1.1E+01
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	1.3E+05	--	--	--	--	--	--	--	--	--	--	na	1.3E+05
Bis 2-Ethylhexyl Phthalate <sup>C</sup>	0	--	--	na	2.2E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	4.4E+01
Bromoform <sup>C</sup>	0	--	--	na	1.4E+03	--	--	na	2.8E+03	--	--	--	--	--	--	--	--	--	--	na	2.8E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	3.8E+03	--	--	--	--	--	--	--	--	--	--	na	3.8E+03
Cadmium	0	1.3E+00	5.3E-01	na	--	2.6E+00	1.1E+00	na	--	--	--	--	--	--	--	--	--	2.6E+00	1.1E+00	na	--
Carbon Tetrachloride <sup>C</sup>	0	--	--	na	1.6E+01	--	--	na	3.2E+01	--	--	--	--	--	--	--	--	--	--	na	3.2E+01
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	na	8.1E-03	4.8E+00	8.6E-03	na	1.6E-02	--	--	--	--	--	--	--	--	4.8E+00	8.6E-03	na	1.6E-02
Chloride	0	8.6E+05	2.3E+05	na	--	1.7E+06	4.6E+05	na	--	--	--	--	--	--	--	--	--	1.7E+06	4.6E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	3.8E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.8E+01	2.2E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03



Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	--	--	na	1.3E+02	--	--	na	2.6E+02	--	--	--	--	--	--	--	--	--	--	na	2.6E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	2.2E+04	--	--	--	--	--	--	--	--	--	--	na	2.2E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	1.7E-01	8.2E-02	na	--	--	--	--	--	--	--	--	--	1.7E-01	8.2E-02	na	--
Chromium III	0	2.6E+02	3.4E+01	na	--	5.2E+02	6.7E+01	na	--	--	--	--	--	--	--	--	--	5.2E+02	6.7E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	3.2E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+01	2.2E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene <sup>C</sup>	0	--	--	na	1.8E-02	--	--	na	3.6E-02	--	--	--	--	--	--	--	--	--	--	na	3.6E-02
Copper	0	5.4E+00	3.9E+00	na	--	1.1E+01	7.8E+00	na	--	--	--	--	--	--	--	--	--	1.1E+01	7.8E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	4.4E+01	1.0E+01	na	3.2E+04	--	--	--	--	--	--	--	--	4.4E+01	1.0E+01	na	3.2E+04
DDD <sup>C</sup>	0	--	--	na	3.1E-03	--	--	na	6.2E-03	--	--	--	--	--	--	--	--	--	--	na	6.2E-03
DDE <sup>C</sup>	0	--	--	na	2.2E-03	--	--	na	4.4E-03	--	--	--	--	--	--	--	--	--	--	na	4.4E-03
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	na	2.2E-03	2.2E+00	2.0E-03	na	4.4E-03	--	--	--	--	--	--	--	--	2.2E+00	2.0E-03	na	4.4E-03
Demeton	0	--	1.0E-01	na	--	--	2.0E-01	na	--	--	--	--	--	--	--	--	--	--	2.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	3.4E-01	3.4E-01	na	--	--	--	--	--	--	--	--	--	3.4E-01	3.4E-01	na	--
Dibenz(a,h)anthracene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	3.8E+02	--	--	--	--	--	--	--	--	--	--	na	3.8E+02
3,3-Dichlorobenzidine <sup>C</sup>	0	--	--	na	2.8E-01	--	--	na	5.6E-01	--	--	--	--	--	--	--	--	--	--	na	5.6E-01
Dichlorobromomethane <sup>C</sup>	0	--	--	na	1.7E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
1,2-Dichloroethane <sup>C</sup>	0	--	--	na	3.7E+02	--	--	na	7.4E+02	--	--	--	--	--	--	--	--	--	--	na	7.4E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	5.8E+02	--	--	--	--	--	--	--	--	--	--	na	5.8E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane <sup>C</sup>	0	--	--	na	1.5E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
1,3-Dichloropropene <sup>C</sup>	0	--	--	na	2.1E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	--	--	na	4.2E+02
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	na	5.4E-04	4.8E-01	1.1E-01	na	1.1E-03	--	--	--	--	--	--	--	--	4.8E-01	1.1E-01	na	1.1E-03
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	8.8E+04	--	--	--	--	--	--	--	--	--	--	na	8.8E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	1.7E+03
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	2.2E+06	--	--	--	--	--	--	--	--	--	--	na	2.2E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	9.0E+03	--	--	--	--	--	--	--	--	--	--	na	9.0E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	5.6E+02	--	--	--	--	--	--	--	--	--	--	na	5.6E+02
2,4-Dinitrotoluene <sup>C</sup>	0	--	--	na	3.4E+01	--	--	na	6.8E+01	--	--	--	--	--	--	--	--	--	--	na	6.8E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	1.0E-07	--	--	--	--	--	--	--	--	--	--	na	1.0E-07
1,2-Diphenylhydrazine <sup>C</sup>	0	--	--	na	2.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	4.4E-01	1.1E-01	na	1.8E+02	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	na	1.8E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	4.4E-01	1.1E-01	na	1.8E+02	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	na	1.8E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	4.4E-01	1.1E-01	--	--	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	1.7E-01	7.2E-02	na	1.2E-01	--	--	--	--	--	--	--	--	1.7E-01	7.2E-02	na	1.2E-01
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	6.0E-01	--	--	--	--	--	--	--	--	--	--	na	6.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	4.2E+03	--	--	--	--	--	--	--	--	--	--	na	4.2E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	2.0E-02	na	--	--	--	--	--	--	--	--	--	--	2.0E-02	na	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	na	7.9E-04	1.0E+00	7.6E-03	na	1.6E-03	--	--	--	--	--	--	--	--	1.0E+00	7.6E-03	na	1.6E-03
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	na	3.9E-04	1.0E+00	7.6E-03	na	7.8E-04	--	--	--	--	--	--	--	--	1.0E+00	7.6E-03	na	7.8E-04
Hexachlorobenzene <sup>C</sup>	0	--	--	na	2.9E-03	--	--	na	5.8E-03	--	--	--	--	--	--	--	--	--	--	na	5.8E-03
Hexachlorobutadiene <sup>C</sup>	0	--	--	na	1.8E+02	--	--	na	3.6E+02	--	--	--	--	--	--	--	--	--	--	na	3.6E+02
Hexachlorocyclohexane Alpha-BHC <sup>C</sup>	0	--	--	na	4.9E-02	--	--	na	9.8E-02	--	--	--	--	--	--	--	--	--	--	na	9.8E-02
Hexachlorocyclohexane Beta-BHC <sup>C</sup>	0	--	--	na	1.7E-01	--	--	na	3.4E-01	--	--	--	--	--	--	--	--	--	--	na	3.4E-01
Hexachlorocyclohexane Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	na	na	1.8E+00	1.9E+00	--	na	3.6E+00	--	--	--	--	--	--	--	--	1.9E+00	--	na	3.6E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	2.2E+03	--	--	--	--	--	--	--	--	--	--	na	2.2E+03
Hexachloroethane <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	6.6E+01	--	--	--	--	--	--	--	--	--	--	na	6.6E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	4.0E+00	na	--	--	--	--	--	--	--	--	--	--	4.0E+00	na	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone <sup>C</sup>	0	--	--	na	9.6E+03	--	--	na	1.9E+04	--	--	--	--	--	--	--	--	--	--	na	1.9E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	3.5E+01	3.9E+00	na	--	6.9E+01	7.9E+00	na	--	--	--	--	--	--	--	--	--	6.9E+01	7.9E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	2.0E-01	na	--	--	--	--	--	--	--	--	--	--	2.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.8E+00	1.5E+00	--	--	--	--	--	--	--	--	--	--	2.8E+00	1.5E+00	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	3.0E+03	--	--	--	--	--	--	--	--	--	--	na	3.0E+03
Methylene Chloride <sup>C</sup>	0	--	--	na	5.9E+03	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Methoxychlor	0	--	3.0E-02	na	--	--	6.0E-02	na	--	--	--	--	--	--	--	--	--	--	6.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	8.0E+01	8.9E+00	na	4.6E+03	1.6E+02	1.8E+01	na	9.2E+03	--	--	--	--	--	--	--	--	1.6E+02	1.8E+01	na	9.2E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	na	3.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	na	6.0E+01	--	--	na	1.2E+02	--	--	--	--	--	--	--	--	--	--	na	1.2E+02
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	na	5.1E+00	--	--	na	1.0E+01	--	--	--	--	--	--	--	--	--	--	na	1.0E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	5.6E+01	1.3E+01	na	--	--	--	--	--	--	--	--	--	5.6E+01	1.3E+01	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	1.3E-01	2.6E-02	na	--	--	--	--	--	--	--	--	--	1.3E-01	2.6E-02	na	--
PCB Total <sup>C</sup>	0	--	1.4E-02	na	6.4E-04	--	2.8E-02	na	1.3E-03	--	--	--	--	--	--	--	--	--	2.8E-02	na	1.3E-03
Pentachlorophenol <sup>C</sup>	0	4.3E+00	3.3E+00	na	3.0E+01	8.6E+00	6.6E+00	na	6.0E+01	--	--	--	--	--	--	--	--	8.6E+00	6.6E+00	na	6.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	1.7E+06	--	--	--	--	--	--	--	--	--	--	na	1.7E+06
Pyrene	0	--	--	na	4.0E+03	--	--	na	8.0E+03	--	--	--	--	--	--	--	--	--	--	na	8.0E+03
Radionuclides Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	4.0E+01	1.0E+01	na	8.4E+03	--	--	--	--	--	--	--	--	4.0E+01	1.0E+01	na	8.4E+03
Silver	0	6.5E-01	--	na	--	1.3E+00	--	na	--	--	--	--	--	--	--	--	--	1.3E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	na	4.0E+01	--	--	na	8.0E+01	--	--	--	--	--	--	--	--	--	--	na	8.0E+01
Tetrachloroethylene <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	6.6E+01	--	--	--	--	--	--	--	--	--	--	na	6.6E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	9.4E-01	--	--	--	--	--	--	--	--	--	--	na	9.4E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	na	2.8E-03	1.5E+00	4.0E-04	na	5.6E-03	--	--	--	--	--	--	--	--	1.5E+00	4.0E-04	na	5.6E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	9.2E-01	1.4E-01	na	--	--	--	--	--	--	--	--	--	9.2E-01	1.4E-01	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	na	1.6E+02	--	--	na	3.2E+02	--	--	--	--	--	--	--	--	--	--	na	3.2E+02
Trichloroethylene <sup>C</sup>	0	--	--	na	3.0E+02	--	--	na	6.0E+02	--	--	--	--	--	--	--	--	--	--	na	6.0E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	4.8E+01	--	--	--	--	--	--	--	--	--	--	na	4.8E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	4.8E+01	--	--	--	--	--	--	--	--	--	--	na	4.8E+01
Zinc	0	5.2E+01	5.2E+01	na	2.6E+04	1.0E+02	1.0E+02	na	5.2E+04	--	--	--	--	--	--	--	--	1.0E+02	1.0E+02	na	5.2E+04

**Notes:**

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)	Note: do not use QL's lower than the minimum QL's provided in agency guidance
Antimony	1.3E+03	
Arsenic	1.8E+02	
Barium	na	
Cadmium	6.4E-01	
Chromium III	4.0E+01	
Chromium VI	1.3E+01	
Copper	4.3E+00	
Iron	na	
Lead	4.7E+00	
Manganese	na	
Mercury	9.2E-01	
Nickel	1.1E+01	
Selenium	6.0E+00	
Silver	5.2E-01	
Zinc	4.1E+01	

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Wood Preservers, Inc.

Permit No.: VA0083127

Receiving Stream: Little Totuskey Creek, UT (002)

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	15 mg/L	1Q10 (Annual) =	0.15 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	15 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0.15 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0.15 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	7.3 SU	1Q10 (Wet season) =	0.15 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.3 SU
10% Maximum pH =	6.3 SU	30Q10 (Wet season) =	0.15 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	6.3 SU
Tier Designation (1 or 2) =	1	30Q5 =	0.15 MGD			Discharge Flow =	0.15 MGD
Public Water Supply (PWS) Y/N? =	N	Harmonic Mean =	0.15 MGD				
Trout Present Y/N? =	N						
Early Life Stages Present Y/N? =	N						

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	2.0E+03	--	--	--	--	--	--	--	--	--	--	na	2.0E+03
Acrolein	0	--	--	na	9.3E+00	--	--	na	1.9E+01	--	--	--	--	--	--	--	--	--	--	na	1.9E+01
Acrylonitrile <sup>C</sup>	0	--	--	na	2.5E+00	--	--	na	5.0E+00	--	--	--	--	--	--	--	--	--	--	na	5.0E+00
Aldrin <sup>C</sup>	0	3.0E+00	--	na	5.0E-04	6.0E+00	--	na	1.0E-03	--	--	--	--	--	--	--	--	6.0E+00	--	na	1.0E-03
Ammonia-N (mg/l) (Yearly)	0	2.62E+01	8.24E+00	na	--	5.24E+01	1.65E+01	na	--	--	--	--	--	--	--	--	--	5.24E+01	1.65E+01	na	--
Ammonia-N (mg/l) (High Flow)	0	2.62E+01	8.24E+00	na	--	5.24E+01	1.65E+01	na	--	--	--	--	--	--	--	--	--	5.24E+01	1.65E+01	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	8.0E+04	--	--	--	--	--	--	--	--	--	--	na	8.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	6.8E+02	3.0E+02	na	--	--	--	--	--	--	--	--	--	6.8E+02	3.0E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene <sup>C</sup>	0	--	--	na	5.1E+02	--	--	na	1.0E+03	--	--	--	--	--	--	--	--	--	--	na	1.0E+03
Benzidine <sup>C</sup>	0	--	--	na	2.0E-03	--	--	na	4.0E-03	--	--	--	--	--	--	--	--	--	--	na	4.0E-03
Benzo (a) anthracene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (b) fluoranthene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (k) fluoranthene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (a) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Bis(2-Chloroethyl) Ether <sup>C</sup>	0	--	--	na	5.3E+00	--	--	na	1.1E+01	--	--	--	--	--	--	--	--	--	--	na	1.1E+01
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	1.3E+05	--	--	--	--	--	--	--	--	--	--	na	1.3E+05
Bis 2-Ethylhexyl Phthalate <sup>C</sup>	0	--	--	na	2.2E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	4.4E+01
Bromoform <sup>C</sup>	0	--	--	na	1.4E+03	--	--	na	2.8E+03	--	--	--	--	--	--	--	--	--	--	na	2.8E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	3.8E+03	--	--	--	--	--	--	--	--	--	--	na	3.8E+03
Cadmium	0	8.2E-01	3.8E-01	na	--	1.6E+00	7.6E-01	na	--	--	--	--	--	--	--	--	--	1.6E+00	7.6E-01	na	--
Carbon Tetrachloride <sup>C</sup>	0	--	--	na	1.6E+01	--	--	na	3.2E+01	--	--	--	--	--	--	--	--	--	--	na	3.2E+01
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	na	8.1E-03	4.8E+00	8.6E-03	na	1.6E-02	--	--	--	--	--	--	--	--	4.8E+00	8.6E-03	na	1.6E-02
Chloride	0	8.6E+05	2.3E+05	na	--	1.7E+06	4.6E+05	na	--	--	--	--	--	--	--	--	--	1.7E+06	4.6E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	3.8E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.8E+01	2.2E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	--	--	na	1.3E+02	--	--	na	2.6E+02	--	--	--	--	--	--	--	--	--	--	na	2.6E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	2.2E+04	--	--	--	--	--	--	--	--	--	--	na	2.2E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	1.7E-01	8.2E-02	na	--	--	--	--	--	--	--	--	--	1.7E-01	8.2E-02	na	--
Chromium III	0	1.8E+02	2.4E+01	na	--	3.7E+02	4.8E+01	na	--	--	--	--	--	--	--	--	--	3.7E+02	4.8E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	3.2E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+01	2.2E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene <sup>C</sup>	0	--	--	na	1.8E-02	--	--	na	3.6E-02	--	--	--	--	--	--	--	--	--	--	na	3.6E-02
Copper	0	3.6E+00	2.7E+00	na	--	7.3E+00	5.5E+00	na	--	--	--	--	--	--	--	--	--	7.3E+00	5.5E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	4.4E+01	1.0E+01	na	3.2E+04	--	--	--	--	--	--	--	--	4.4E+01	1.0E+01	na	3.2E+04
DDD <sup>C</sup>	0	--	--	na	3.1E-03	--	--	na	6.2E-03	--	--	--	--	--	--	--	--	--	--	na	6.2E-03
DDE <sup>C</sup>	0	--	--	na	2.2E-03	--	--	na	4.4E-03	--	--	--	--	--	--	--	--	--	--	na	4.4E-03
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	na	2.2E-03	2.2E+00	2.0E-03	na	4.4E-03	--	--	--	--	--	--	--	--	2.2E+00	2.0E-03	na	4.4E-03
Demeton	0	--	1.0E-01	na	--	--	2.0E-01	na	--	--	--	--	--	--	--	--	--	--	2.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	3.4E-01	3.4E-01	na	--	--	--	--	--	--	--	--	--	3.4E-01	3.4E-01	na	--
Dibenz(a,h)anthracene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	3.8E+02	--	--	--	--	--	--	--	--	--	--	na	3.8E+02
3,3-Dichlorobenzidine <sup>C</sup>	0	--	--	na	2.8E-01	--	--	na	5.6E-01	--	--	--	--	--	--	--	--	--	--	na	5.6E-01
Dichlorobromomethane <sup>C</sup>	0	--	--	na	1.7E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
1,2-Dichloroethane <sup>C</sup>	0	--	--	na	3.7E+02	--	--	na	7.4E+02	--	--	--	--	--	--	--	--	--	--	na	7.4E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	5.8E+02	--	--	--	--	--	--	--	--	--	--	na	5.8E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane <sup>C</sup>	0	--	--	na	1.5E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
1,3-Dichloropropene <sup>C</sup>	0	--	--	na	2.1E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	--	--	na	4.2E+02
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	na	5.4E-04	4.8E-01	1.1E-01	na	1.1E-03	--	--	--	--	--	--	--	--	4.8E-01	1.1E-01	na	1.1E-03
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	8.8E+04	--	--	--	--	--	--	--	--	--	--	na	8.8E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	1.7E+03
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	2.2E+06	--	--	--	--	--	--	--	--	--	--	na	2.2E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	9.0E+03	--	--	--	--	--	--	--	--	--	--	na	9.0E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	5.6E+02	--	--	--	--	--	--	--	--	--	--	na	5.6E+02
2,4-Dinitrotoluene <sup>C</sup>	0	--	--	na	3.4E+01	--	--	na	6.8E+01	--	--	--	--	--	--	--	--	--	--	na	6.8E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	1.0E-07	--	--	--	--	--	--	--	--	--	--	na	1.0E-07
1,2-Diphenylhydrazine <sup>C</sup>	0	--	--	na	2.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	4.4E-01	1.1E-01	na	1.8E+02	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	na	1.8E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	4.4E-01	1.1E-01	na	1.8E+02	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	na	1.8E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	4.4E-01	1.1E-01	--	--	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	1.7E-01	7.2E-02	na	1.2E-01	--	--	--	--	--	--	--	--	1.7E-01	7.2E-02	na	1.2E-01
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	6.0E-01	--	--	--	--	--	--	--	--	--	--	na	6.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	4.2E+03	--	--	--	--	--	--	--	--	--	--	na	4.2E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	2.0E-02	na	--	--	--	--	--	--	--	--	--	--	2.0E-02	na	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	na	7.9E-04	1.0E+00	7.6E-03	na	1.6E-03	--	--	--	--	--	--	--	--	1.0E+00	7.6E-03	na	1.6E-03
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	na	3.9E-04	1.0E+00	7.6E-03	na	7.8E-04	--	--	--	--	--	--	--	--	1.0E+00	7.6E-03	na	7.8E-04
Hexachlorobenzene <sup>C</sup>	0	--	--	na	2.9E-03	--	--	na	5.8E-03	--	--	--	--	--	--	--	--	--	--	na	5.8E-03
Hexachlorobutadiene <sup>C</sup>	0	--	--	na	1.8E+02	--	--	na	3.6E+02	--	--	--	--	--	--	--	--	--	--	na	3.6E+02
Hexachlorocyclohexane Alpha-BHC <sup>C</sup>	0	--	--	na	4.9E-02	--	--	na	9.8E-02	--	--	--	--	--	--	--	--	--	--	na	9.8E-02
Hexachlorocyclohexane Beta-BHC <sup>C</sup>	0	--	--	na	1.7E-01	--	--	na	3.4E-01	--	--	--	--	--	--	--	--	--	--	na	3.4E-01
Hexachlorocyclohexane Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	na	na	1.8E+00	1.9E+00	--	na	3.6E+00	--	--	--	--	--	--	--	--	1.9E+00	--	na	3.6E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	2.2E+03	--	--	--	--	--	--	--	--	--	--	na	2.2E+03
Hexachloroethane <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	6.6E+01	--	--	--	--	--	--	--	--	--	--	na	6.6E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	4.0E+00	na	--	--	--	--	--	--	--	--	--	--	4.0E+00	na	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone <sup>C</sup>	0	--	--	na	9.6E+03	--	--	na	1.9E+04	--	--	--	--	--	--	--	--	--	--	na	1.9E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	2.0E+01	2.3E+00	na	--	4.1E+01	4.6E+00	na	--	--	--	--	--	--	--	--	--	4.1E+01	4.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	2.0E-01	na	--	--	--	--	--	--	--	--	--	--	2.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.8E+00	1.5E+00	--	--	--	--	--	--	--	--	--	--	2.8E+00	1.5E+00	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	3.0E+03	--	--	--	--	--	--	--	--	--	--	na	3.0E+03
Methylene Chloride <sup>C</sup>	0	--	--	na	5.9E+03	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Methoxychlor	0	--	3.0E-02	na	--	--	6.0E-02	na	--	--	--	--	--	--	--	--	--	--	6.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	5.6E+01	6.3E+00	na	4.6E+03	1.1E+02	1.3E+01	na	9.2E+03	--	--	--	--	--	--	--	--	1.1E+02	1.3E+01	na	9.2E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	na	3.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	na	6.0E+01	--	--	na	1.2E+02	--	--	--	--	--	--	--	--	--	--	na	1.2E+02
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	na	5.1E+00	--	--	na	1.0E+01	--	--	--	--	--	--	--	--	--	--	na	1.0E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	5.6E+01	1.3E+01	na	--	--	--	--	--	--	--	--	--	5.6E+01	1.3E+01	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	1.3E-01	2.6E-02	na	--	--	--	--	--	--	--	--	--	1.3E-01	2.6E-02	na	--
PCB Total <sup>C</sup>	0	--	1.4E-02	na	6.4E-04	--	2.8E-02	na	1.3E-03	--	--	--	--	--	--	--	--	--	2.8E-02	na	1.3E-03
Pentachlorophenol <sup>C</sup>	0	4.3E+00	3.3E+00	na	3.0E+01	8.6E+00	6.6E+00	na	6.0E+01	--	--	--	--	--	--	--	--	8.6E+00	6.6E+00	na	6.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	1.7E+06	--	--	--	--	--	--	--	--	--	--	na	1.7E+06
Pyrene	0	--	--	na	4.0E+03	--	--	na	8.0E+03	--	--	--	--	--	--	--	--	--	--	na	8.0E+03
Radionuclides Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	4.0E+01	1.0E+01	na	8.4E+03	--	--	--	--	--	--	--	--	4.0E+01	1.0E+01	na	8.4E+03
Silver	0	3.2E-01	--	na	--	6.4E-01	--	na	--	--	--	--	--	--	--	--	--	6.4E-01	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	na	4.0E+01	--	--	na	8.0E+01	--	--	--	--	--	--	--	--	--	--	na	8.0E+01
Tetrachloroethylene <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	6.6E+01	--	--	--	--	--	--	--	--	--	--	na	6.6E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	9.4E-01	--	--	--	--	--	--	--	--	--	--	na	9.4E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	na	2.8E-03	1.5E+00	4.0E-04	na	5.6E-03	--	--	--	--	--	--	--	--	1.5E+00	4.0E-04	na	5.6E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	9.2E-01	1.4E-01	na	--	--	--	--	--	--	--	--	--	9.2E-01	1.4E-01	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	na	1.6E+02	--	--	na	3.2E+02	--	--	--	--	--	--	--	--	--	--	na	3.2E+02
Trichloroethylene <sup>C</sup>	0	--	--	na	3.0E+02	--	--	na	6.0E+02	--	--	--	--	--	--	--	--	--	--	na	6.0E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	4.8E+01	--	--	--	--	--	--	--	--	--	--	na	4.8E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	4.8E+01	--	--	--	--	--	--	--	--	--	--	na	4.8E+01
Zinc	0	3.6E+01	3.6E+01	na	2.6E+04	7.2E+01	7.3E+01	na	5.2E+04	--	--	--	--	--	--	--	--	7.2E+01	7.3E+01	na	5.2E+04

**Notes:**

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline =  $(0.25(\text{WQC} - \text{background conc.}) + \text{background conc.})$  for acute and chronic  
=  $(0.1(\text{WQC} - \text{background conc.}) + \text{background conc.})$  for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)	Note: do not use QL's lower than the minimum QL's provided in agency guidance
Antimony	1.3E+03	
Arsenic	1.8E+02	
Barium	na	
Cadmium	4.6E-01	
Chromium III	2.9E+01	
Chromium VI	1.3E+01	
Copper	2.9E+00	
Iron	na	
Lead	2.8E+00	
Manganese	na	
Mercury	9.2E-01	
Nickel	7.5E+00	
Selenium	6.0E+00	
Silver	2.5E-01	
Zinc	2.9E+01	

## WATER QUALITY DATA EVALUATION

Per agency guidance, storm water effluent data (reported on the discharge monitoring reports) were compared against two times the acute criteria in the Water Quality Standards (WQS). The comparative values (two times the acute water quality criteria) were calculated using a DEQ-created Excel spreadsheet called MSTRANTI, which requires inputs representing critical data for effluent and stream flows and quality, see MSTRANTI printouts above. If pollutants are discharged at concentrations exceeding the comparative values, additional storm water evaluations (i.e. effluent toxicity testing) are required. Storm water effluent data (reported on EPA Form 2F) were compared against benchmark monitoring concentrations contained in the VPDES General Permit for Storm Water Associated with Industrial Activity, 9VAC25-151-10 et seq. If pollutants are discharged at concentrations exceeding the benchmark monitoring concentrations, modifications to the existing SWPPP are needed and/or more specific pollution prevention controls may be necessary.

Table 1. Outfall 001 Storm Water Effluent Evaluation

Parameter	2 x Acute WQS (µg/L)	VPDES GP Benchmark Monitoring Concentration (µg/L)	Maximum Datum reported on DMRs (µg/L)	Maximum Datum reported on EPA Form 2F (µg/L)	Datum Exceeds 2 x Acute WQS	Datum Exceeds Benchmark Concentration
Arsenic, Total Recoverable	-----	50	-----	24.2	-----	No
Arsenic, Dissolved	680	-----	38	-----	No	-----
Chromium, Total Recoverable	-----	16	-----	15.1	-----	No
Chromium III, Dissolved	520	-----	56	-----	No	-----
Chromium VI, Dissolved	32	-----	10	-----	No	-----
Copper, Total Recoverable	-----	18	-----	27.6	-----	<b>YES</b>
Copper, Dissolved	11	-----	31	-----	<b>YES</b>	-----
Lead, Total Recoverable	-----	120	-----	2.6	-----	No
Nickel, Total Recoverable	-----	470	-----	6.3	-----	No
Zinc, Total Recoverable	-----	120	-----	43.3	-----	No



Table 2. Outfall 002 Storm Water Effluent Evaluation

Parameter	2 x Acute WQS (µg/L)	VPDES GP Benchmark Monitoring Concentration (µg/L)	Maximum Datum reported on DMRs (µg/L)	Maximum Datum reported on EPA Form 2F (µg/L)	Datum Exceeds 2 x Acute WQS	Datum Exceeds Benchmark Concentration
Ammonia	52,400	-----	-----	110	No	No
Arsenic, Total Recoverable	-----	50	-----	20.2	-----	No
Arsenic, Dissolved	680	-----	14	-----	No	-----
Chromium, Total Recoverable	-----	16	-----	12.4	-----	No
Chromium III, Dissolved	370	-----	32	-----	No	-----
Chromium VI, Dissolved	32	-----	<20	-----	No	-----
Copper, Total Recoverable	-----	18	-----	56.9	-----	<b>YES</b>
Copper, Dissolved	7.3	-----	24	-----	<b>YES</b>	No
Lead, Total Recoverable	-----	120	-----	3.2	-----	No
Nickel, Total Recoverable	-----	470	-----	5.1	-----	No
Zinc, Total Recoverable	-----	120	-----	42.6	-----	No

As indicated in Tables 1 and 2, above, the maximum reported dissolved copper concentrations exceeded the established comparative values (two times the acute water quality criteria) at Outfall 001 and Outfall 002. As a result, the storm water management evaluation special condition has been included in the 2012 permit; see Part I.C.1. This special condition includes continued annual Whole Effluent Toxicity (WET) testing utilizing *Ceriodaphnia dubia*. In addition, the maximum reported total recoverable copper concentrations exceeded the benchmark monitoring concentration at Outfall 001 and Outfall 002. Exceedances of a benchmark monitoring concentration do not indicate that violations of a water quality standard have occurred; however, it signifies that modifications to the Storm Water Pollution Prevention Plan (SWPPP) are necessary, such as the requirement for more site-specific pollution prevention controls. Part I.C.3.a.(1) of the permit provides 180 days from the effective date of the permit to review, modify, and implement the updated SWPPP in order to further reduce storm water runoff pollutant concentrations.

# Attachment 9

Whole Effluent Toxicity (WET) Memo



## MEMORANDUM

### DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Regional Office*

4949-A Cox Road

Glen Allen, Virginia 23060

(804) 527-5020

**TO:** Deborah DeBiasi, Whole Effluent Toxicity (WET) Program, OWP&CA

**FROM:** Drew Hammond, Water Permit Writer, PRO

**DATE:** October 26, 2010  
October 27, 2010 – Revised  
February 13, 2012 – Revised

**SUBJECT:** VPDES Permit No. VA0083127 – Wood Preservers, Inc.  
WET Testing Data Review

**COPIES:** File

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Facility Name: Wood Preservers, Inc.

Permit Number: VA0083127

Receiving Stream: Clarks Run, UT (Outfall 001)  
Little Totuskey Creek, UT (Outfall 002)

Facility SIC: 2491 (Wood Preserving)  
2421 (General Sawmills and Planing Mills)  
2499 (Wood Products Not Elsewhere Classified; Mulch)  
3087 (Fiberglass Production) – Covered Operation

Acute In-Stream  
Waste Concentration  
(IWC<sub>acute</sub>): 100% (Outfalls 001 and 002)

#### Background

The 2006 minor industrial storm water permit for Wood Preservers, Inc. is in the process of reissuance. The subject facility is a wood preserving operation utilizing copper azole, chromated copper arsenate (CCA) and Dricon®, a fire retardant and is located at 15939 Historyland Highway in Warsaw, Virginia. Wood Preservers, Inc. discharges storm water through Outfall 001 to an intermittent tributary of Clarks Run and through Outfall 002 to an intermittent tributary of Little Totuskey Creek. The storm water discharged through both outfalls is exposed to wood treated with preservation products noted above.

#### Permit Requirements

The expiring VPDES permit contains Whole Effluent Toxicity (WET) testing for Outfall 001 and Outfall 002. WET testing requirements are based on Guidance Memorandum 00-2012. More specifically, the Toxics Management Program (TMP) special condition required acute annual WET testing for both outfalls utilizing *Ceriodaphina dubia* and storm water effluent split grab samples. In addition, the TMP special condition set the acute criteria of NOEAC equal to 100%.

#### Data Summary

This data review includes the results of 5 sets of annual testing for Outfall 001 and Outfall 002. All WET testing was performed by Coastal Bioanalysts, Inc. No quality control problems were found in any of the WET tests performed.

Table 1. Results of the Acute Toxicity Tests for *C. dubia* – Outfall 001

Test Date	NOAEC	% Survival in 100% Effluent	Laboratory
9/1/2006	100	100	Coastal Bioanalysts
8/6/2007	100	100	Coastal Bioanalysts
9/25/2008	100	100	Coastal Bioanalysts
9/8/2009	100	100	Coastal Bioanalysts
9/29/2010	100	100	Coastal Bioanalysts

Table 2. Results of the Acute Toxicity Tests for *C. dubia* – Outfall 002

Test Date	NOAEC	% Survival in 100% Effluent	Laboratory
9/1/2006	100	100	Coastal Bioanalysts
2/1/2008	100	100	Coastal Bioanalysts
11/16/2008	100	100	Coastal Bioanalysts
10/28/2009	100	100	Coastal Bioanalysts
9/30/2010	100	100	Coastal Bioanalysts

#### Conclusions & Recommendations

The results of the acute WET tests for Outfalls 001 and 002 are summarized in Tables 1 and 2 above. The storm water effluent met the WET testing condition of acute NOAEC equal to 100% in all of the tests conducted during 2006 to 2010. Due to elevated levels (greater than established comparative values) of dissolved copper in the storm water effluent, DEQ staff recommends continued annual acute WET testing for both outfalls. The 2006 permit requires the facility to perform annual acute WET testing with the most sensitive species, *Ceriodaphnia dubia*. This testing will be carried forward in the 2012 permit under the Storm Water Management Conditions, which reflects the January 27, 2010, VPDES Permit Manual. Acute NOAEC endpoints, rather than LC<sub>50</sub> endpoints, are recommended in order to prevent backsliding; the 2006 permit TMP special condition utilizes an endpoint of acute NOAEC equal to 100%.

The revised WET testing permit section to be included in the 2012 permit reissuance is as follows:

#### C. Storm Water Management Conditions

##### 1. Storm Water Management Evaluation

The Storm Water Pollution Prevention Plan (SWPPP), which is to be developed and maintained in accordance with subsection Part I.C.3 below, shall have a goal of reducing pollutants discharged from all the regulated industrial activity storm water outfalls.

##### a. Pollutant Specific Screening

One goal of the SWPPP shall place emphasis on reducing, to the maximum extent practicable, the following pollutants in the outfalls noted below.

<u>Outfall No.</u>	<u>Pollutants</u>	<u>Comparative Value</u>
001	Total Recoverable Copper	11 µg/L
002	Total Recoverable Copper	7.3 µg/L

b. Whole Effluent Toxicity Screening

With the exception noted in Part I.C.1.d below, the permittee shall conduct annual acute toxicity tests on the outfalls noted in a. above using grab samples of the discharge from the storm water outfall. These acute screening tests shall be 48-hour static tests using *Ceriodaphnia dubia*, conducted in such a manner and at sufficient dilutions for calculation of a valid acute NOAEC (No Observed Adverse Effects Concentration). The LC<sub>50</sub> should also be determined and noted on the submitted report. The tests shall be conducted on a calendar year basis with one copy of all results and all supporting information submitted with the annual report due no later than February 10<sup>th</sup> of each year. Test procedures and reporting shall be in accordance with the WET testing methods cited in 40 CFR 136.3. Additional technical assistance in developing the procedures for these tests will be provided by the Department of Environmental Quality (DEQ), if requested by the permittee. If any of the biological tests are invalidated, an additional test shall be conducted within thirty (30) days of notification. If there is no discharge during this 30-day period, a sample must be taken during the first qualifying discharge.

c. The permittee shall submit the following information with the results of the toxicity tests:

- (1) The actual or estimated effluent flow at the time of the sampling.
- (2) The time at which the discharge event began, the time at which the effluent was sampled, and the duration of the discharge event.

d. Waiver of Toxicity Screening

The permittee may petition the Department to waive the annual acute toxicity tests and reporting required by Part I.C.1.b above when the quarterly monitoring results for Total Recoverable Copper as required by Part I.A of this permit, for the specific outfall are below the comparative value(s) noted in Part I.C.1.a above for four consecutive quarters. The waiver may be implemented upon receipt of written approval from the Department and shall meet all conditions specified herein. All requirements of Part I.C.1.b shall remain in effect until the waiver is granted.

If quarterly monitoring results for Total Recoverable Copper at Outfall 001 or Outfall 002 are detected at or above the comparative value(s) noted in Part I.C.1.a after the waiver is granted, the permittee shall resume annual acute toxicity testing and reporting required by Part I.C.1.b at the start of the calendar quarter following the date of sample collection. Testing and reporting requirements shall then continue in accordance with Part I.C.1.b for the duration of the permit term.

e. The effectiveness of the SWPPP will be evaluated via the required monitoring for all parameters listed in Part I.A of this permit for the regulated storm water outfalls, including the specific pollutants noted in a. above and the toxicity screening required by this special condition. Monitoring results that are above the comparative value for the specific pollutants in a. above or, in the case of toxicity, result in an acute NOAEC of less than 100% effluent will justify the need to reexamine the SWPPP and any best management practices (BMPs) being utilized for the affected outfalls. In addition, the permittee shall amend the SWPPP whenever there is a change in the facility or its operation which materially increases the potential for activities to result in a discharge of

significant amounts of pollutants.

- f. No later than February 10<sup>th</sup> of each year, the permittee shall submit to the DEQ Piedmont Regional Office an annual report which includes the pollutant-specific and biological monitoring data from the outfalls included in this condition along with a summary of any steps taken to modify either the SWPPP or any BMPs based on the monitoring data.

## Hammond, Andrew (DEQ)

---

**From:** DeBiasi, Deborah (DEQ)  
**Sent:** Tuesday, February 14, 2012 4:42 PM  
**To:** Hammond, Andrew (DEQ)  
**Subject:** RE: VA0083127 - Wood Preservers Inc - WET Evaluation Memo

Drew,

Moving the special condition for WET testing to the stormwater section requirements is fine for this permittee, in that they have not exhibited any reasonable potential for toxicity. That speaks well for a wood preserving business.

I did have one comment:

Where you refer to *C. Dubia*, the species name should be lower case, ie *C. dubia*.

Deborah L. DeBiasi, Virginia DEQ  
Office of Water Permit and Compliance Assistance Programs  
**Email:** [Deborah.DeBiasi@deq.virginia.gov](mailto:Deborah.DeBiasi@deq.virginia.gov)  
**PH:** 804-698-4028

---

**From:** Hammond, Andrew (DEQ)  
**Sent:** Tuesday, February 14, 2012 3:15 PM  
**To:** DeBiasi, Deborah (DEQ)  
**Subject:** VA0083127 - Wood Preservers Inc - WET Evaluation Memo

Deborah,

Attached is my updated WET evaluation memo for Wood Preservers, Inc. (VA0083127). Please let me know if you have any questions, comments, or concur with my evaluation.

Thanks,  
Drew

Andrew J. Hammond II, P.E.  
Water Permit Writer  
Dept. of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060  
Ph: 804.527.5048  
Fx: 804.527.5106  
[Andrew.Hammond@deq.virginia.gov](mailto:Andrew.Hammond@deq.virginia.gov)

This email should not be considered a legal opinion or case decision as defined by the Administrative Process Act, Code of Virginia § 2.2-4000 *et seq.*

# Attachment 10

NPDES Permit Rating Worksheet



# NPDES PERMIT RATING WORK SHEET

NPDES No. VA0083127

- ☐ Regular Addition  
☐ Discretionary Addition  
☒ Score change, but no status change  
☐ Deletion

Facility Name: Wood Preservers, Inc

City: Warsaw, Virginia

Receiving Water: Clarks Run, UT (001, 003, 004) and Little Totuskey Creek, UT (002)

Reach Number: N/A

*Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?*

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ☒ NO (continue)

*Is this permit for a municipal separate storm sewer serving a population greater than 100,000?*

- ☐ YES; score is 700 (stop here)  
☒ NO (continue)

## FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: \_\_\_\_\_

Primary SIC Code: 2491

Other SIC Codes: 2421, 2499, 3087

Industrial Subcategory Code: 003 (Code 000 if no subcategory)

*Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)*

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input checked="" type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	15	<input type="checkbox"/> 7.	7	35
<input type="checkbox"/> 1.	1	5	<input type="checkbox"/> 4.	4	20	<input type="checkbox"/> 8.	8	40
<input type="checkbox"/> 2.	2	10	<input type="checkbox"/> 5.	5	25	<input type="checkbox"/> 9.	9	45
			<input type="checkbox"/> 6.	6	30	<input type="checkbox"/> 10.	10	50

Code Number Checked: 0

**Total Points Factor 1: 0**

## FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; check only one)*

Section A ? Wastewater Flow Only Considered

Wastewater Type (See Instructions)		Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/>	11	0
Flow 5 to 10 MGD	<input type="checkbox"/>	12	10
Flow > 10 to 50 MGD	<input type="checkbox"/>	13	20
Flow > 50 MGD	<input type="checkbox"/>	14	30
Type II: Flow < 1 MGD	<input type="checkbox"/>	21	10
Flow 1 to 5 MGD	<input type="checkbox"/>	22	20
Flow > 5 to 10 MGD	<input type="checkbox"/>	23	30
Flow > 10 MGD	<input type="checkbox"/>	24	50
Type III: Flow < 1 MGD	<input type="checkbox"/>	31	0
Flow 1 to 5 MGD	<input type="checkbox"/>	32	10
Flow > 5 to 10 MGD	<input type="checkbox"/>	33	20
Flow > 10 MGD	<input type="checkbox"/>	34	30

Section B ? Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10 %	<input type="checkbox"/>	41	0
	10 % to < 50 %	<input type="checkbox"/>	42	10
	> 50 %	<input type="checkbox"/>	43	20
Type II:	< 10 %	<input type="checkbox"/>	51	0
	10 % to < 50 %	<input type="checkbox"/>	52	20
	> 50 %	<input checked="" type="checkbox"/>	53	30

Code Checked from Section A or B: 53

**Total Points Factor 2: 30**

**FACTOR 3: Conventional Pollutants** *(only when limited by the permit)*A. Oxygen Demanding Pollutant: (check one) ☐ BOD ☐ COD ☐ Other: \_\_\_\_\_

			Code	Points
Permit Limits: (check one)	<input type="checkbox"/>	< 100 lbs/day	1	0
	<input type="checkbox"/>	100 to 1000 lbs/day	2	5
	<input type="checkbox"/>	> 1000 to 3000 lbs/day	3	15
	<input type="checkbox"/>	> 3000 lbs/day	4	20

Code Checked: N/A**Points Scored: 0**

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
<input type="checkbox"/>	< 100 lbs/day	1	0
<input type="checkbox"/>	100 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 5000 lbs/day	3	15
<input type="checkbox"/>	> 5000 lbs/day	4	20

Code Checked: N/A**Points Scored: 0**C. Nitrogen Pollutant: (check one) ☐ Ammonia ☐ Other: \_\_\_\_\_

		<i>Nitrogen Equivalent</i>	<i>Code</i>	<i>Points</i>
Permit Limits: (check one)	<input type="checkbox"/>	< 300 lbs/day	1	0
	<input type="checkbox"/>	300 to 1000 lbs/day	2	5
	<input type="checkbox"/>	> 1000 to 3000 lbs/day	3	15
	<input type="checkbox"/>	> 3000 lbs/day	4	20

Code Checked: N/A**Points Scored: 0****Total Points Factor 3: 0****FACTOR 4: Public Health Impact**

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☐ YES (If yes, check toxicity potential number below)☒ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column ? check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10

Code Number Checked: N/A**Total Points Factor 4: 0**

**FACTOR 5: Water Quality Factors**

- A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge:*

<input type="checkbox"/>	Yes	Code 1	Points 10
<input checked="" type="checkbox"/>	No	2	0

- B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

<input checked="" type="checkbox"/>	Yes	Code 1	Points 0
<input type="checkbox"/>	No	2	5

- C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

<input type="checkbox"/>	Yes	Code 1	Points 10
<input checked="" type="checkbox"/>	No	2	0

Code Number Checked: A: 2 B: 1 C: 2

**Points Factor 5:** A: 0 + B: 0 + C: 0 = 0 **Total**

**FACTOR 6: Proximity to Near Coastal Waters**

- A. *Base Score: Enter flow code here (from Factor 2):* 53

*Enter the multiplication factor that corresponds to the flow code:* 0.60

Check appropriate facility HPRI Code (from PCS):

	HPRI#	Code	HPRI Score	Flow Code	Multiplication Factor
<input type="checkbox"/>	1	1	20	11, 31, or 41	0.00
<input type="checkbox"/>	2	2	0	12, 32, or 42	0.05
<input checked="" type="checkbox"/>	3	3	30	13, 33, or 43	0.10
<input type="checkbox"/>	4	4	0	14 or 34	0.15
<input type="checkbox"/>	5	5	20	21 or 51	0.10
				22 or 52	0.30
				23 or 53	0.60
HPRI code checked: 3				24	1.00

HPRI code checked: 3

Base Score: (HPRI Score) 30 X (Multiplication Factor) 0.60 = 18 (TOTAL POINTS A)

- B. *Additional Points* ☐ *NEP Program*  
*For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?*

	Code	Points
<input checked="" type="checkbox"/> Yes	1	10
<input type="checkbox"/> No	2	0

- C. *Additional Points* ☐ *Great Lakes Area of Concern*  
*For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see Instructions)*

	Code	Points
<input type="checkbox"/> Yes	1	10
<input checked="" type="checkbox"/> No	2	0

Code Number Checked: A: 3 B: 1 C: 2

**Points Factor 6:** A: 18 + B: 10 + C: 0 = 28 **Total**

**SCORE SUMMARY**

Factor	Description	Total Points
1	Toxic Pollutant Potential	<u>0</u>
2	Flows/Streamflow Volume	<u>30</u>
3	Conventional Pollutants	<u>0</u>
4	Public Health Impacts	<u>0</u>
5	Water Quality Factors	<u>0</u>
6	Proximity to Near Coastal Waters	<u>28</u>
TOTAL (Factors 1 through 6)		<u>58</u>

S1. Is the total score equal to or greater than 80? ☐ Yes (Facility is a major) ☒ No

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☒ No

☐ Yes (Add 500 points to the above score and provide reason below )

Reason:

NEW SCORE: 58

OLD SCORE: 40

Permit Reviewer's Name: Andrew Hammond

Permit Reviewer's Number: (804) 527-5048

Date: 2/7/2012

# Attachment 11

VPDES Ground Water Monitoring Plan  
Post-Closure Care Plan  
RCRA Facility Investigation Report  
“Hot Spot” Soil Remediation Plan Approval  
“Hot Spot” Soil Excavation Approval



File

COMMONWEALTH of VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt  
Director

WATER DIVISION - KILMARNOCK OFFICE  
P. O. Box 669  
KILMARNOCK, VIRGINIA 22482  
(804) 435-3181

Gerard Seeley, Jr.  
Regional Director

May 17, 1995

Mr. William M. Wright, CEO  
Wood Preservers, Inc.  
P. O. Box 158  
Warsaw, Virginia 22572

Re: Groundwater Monitoring Plan Approval for VPDES Permit No.  
VA0083127 - Wood Preservers, Inc. - Richmond County

Dear Mr. Wright:

The staff has completed its review of your Groundwater Monitoring Plan prepared for your facility as a requirement of the subject VPDES permit.

In accordance with the attached memorandum, the Groundwater Monitoring Plan is technically adequate and approved for use for your facility, and will become an enforceable part of your VPDES permit.

Your cooperation in complying with the requirements of your VPDES permit is greatly appreciated. If you have any questions regarding facility operations or compliance with your VPDES permit, please do not hesitate to contact me at 804-435-3181.

Sincerely,

A handwritten signature in cursive script, reading "Debra J. Barnes".

Debra J. Barnes  
Environmental Engineer  
Piedmont Region - Kilmarnock Office

WOODP.gwplan.wp5.



MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY  
*Piedmont Regional Office*

4900 Cox Road Glen Allen, VA 23060

804/527-5020

**SUBJECT:** Ground Water Monitoring Plan, Wood Preservers, Inc. (VA0083127)

**TO:** Debbie Barnes

**FROM:** Timothy Petrie *Tim Petrie*

**COPY:** B.N. Sinha

**DATE:** March 14, 1995

The review of Wood Preservers' (WPI) Ground Water Monitoring Plan has been completed. The site visit on 3/8/95 was helpful in assessing the proposed plan and we thank you for your assistance in arranging the meeting with Mr. Wright and the consultants from Groundwater Technology, formerly known as Chester Environmental.

The proposed ground water monitoring plan that closely follows the RCRA Post-Closure Care activities is deemed adequate. The proposed plan also discusses the uncovered storage areas for treated wood which is not covered under the Post-Closure Care Program. WPI proposes that the uncovered storage areas will be evaluated by initially using the samples taken at outfall 001. If elevated levels of the site specific analytes in the outfall and leak detection well are detected, a soil sampling and analysis plan will be initiated to assess constituent levels in the soil and to evaluate the ground water impact. Results of the soil investigation may indicate the need to revise the approved ground water monitoring plan to include the uncovered storage area. This course of action was discussed during the 3/8/95 visit and we feel this is appropriate.

Please keep us informed on the status of the TMP violations and the probable cause(s) of the violations. The information would assist us in making future recommendations with regard to the ground water monitoring activities at Wood Preservers, Inc.

If you have any further questions about this review, please call me at 527-5342.

RECEIVED  
MAR 15 1995



**CHESTER**  
ENVIRONMENTAL

November 23, 1994

*Facsimile*

Ms. Debbie Barnes  
Department of Environmental Quality  
State Water Control Board  
P.O. Box 669  
Church Street  
Kilmarnock, VA 22482

Dear Ms. Barnes:

Re: Proposed Groundwater Monitoring Plan  
Wood Preservers, Inc.  
Warsaw, VA

Enclosed please find two (2) copies of the Proposed NPDES Groundwater Monitoring Plan for Wood Preservers, Inc. (WPI). This Plan provides WPI's approach for monitoring groundwater to fulfill requirements of the NPDES permit.

Due to the holidays, you indicated that your office will be closed from noon Wednesday, November 23, 1994 to Monday, November 28, 1994. However, you indicated that receipt of the Plan on Monday, November 28, 1994, was acceptable given the holiday schedule.

Should you have any questions, please contact Mr. William Wright at (804) 333-4022, Mr. John Mitsak of Chester Environmental at (410) 821-2900 or myself at (412) 269-5889.

Sincerely,

Mark Ferlin  
Hydrogeologist

MF:DG/MF011

cc: J. Mitsak - Chester  
W. Wright - WPI

**RECEIVED**  
NOV 28 1994

600 Clubhouse Drive  
Moon Township, Pennsylvania 15108  
412-269-5700; Fax 412-269-5749



***Wood Preservers, Inc.  
Warsaw, Virginia***

*Report on*

***Proposed NPDES Groundwater  
Monitoring Plan***

***November 1994***



**CHESTER**  
ENVIRONMENTAL

**RECEIVED**  
NOV 28 1994

Wood Preservers, Inc.  
Warsaw, Virginia

**Proposed NPDES Groundwater Monitoring Plan**

November 1994

Prepared by: Mark Ferlin

Approved by: John Mitsak

Project No.: 300056-00



**CHESTER**  
ENVIRONMENTAL

600 Clubhouse Drive · Moon Township, PA 15108  
412-269-5700 · Fax 412-269-5749

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# PROPOSED NPDES GROUNDWATER MONITORING PLAN

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# PROPOSED NPDES GROUNDWATER MONITORING PLAN

## SECTION 1

### INTRODUCTION

#### **PURPOSE AND OBJECTIVES**

The purpose of the Groundwater Monitoring Plan (GMP) is to provide a document that presents Wood Preservers, Inc. (WPI) approach for monitoring groundwater to fulfill requirements of the NPDES permit. The objective of the GMP is to define a plan that will provide groundwater quality data in or near areas described by the permit.

#### **SITE DESCRIPTION**

The WPI site is located in Warsaw, VA. Operations at the site started in 1975 and are currently ongoing. The WPI site is a fully integrated wood preserving plant. Raw wood is transported to the site, cut, debarked, and milled to the desired product, and preserved using either creosote or chromated copper arsenate (CCA). Use of pentachlorophenol was discontinued in 1984.

Figure 1 shows the extent of the plant boundaries, the treating area, raw lumber storage areas, and treated lumber storage areas. Areas of treated lumber storage were identified over a three year period from 1991 to 1994. As can be noted from this figure, the treating plant and associated treated lumber storage areas are concentrated in the eastern site areas. One treated wood storage area is located in the northern site area west of the treating plant.

Following cutting, debarking, and milling, wood products (e.g., poles, ties, etc.) are treated in cylinders located in the treating plant as shown on Figure 1. When treatment is complete, the treated wood is pulled from the cylinders onto drip tracks. The drip tracks are constructed of reinforced concrete protected by a special coating. Beneath the concrete is a leachate collection system. A synthetic liner forms the underside of the collection system. The drip tracks are designed to contain and collect liquids and convey the liquids for treatment and reuse. After the treated wood has set for a period a time to permit drainage, the creosote treated wood is then transferred to the treated wood storage areas. Storage of treated wood consists of placement in covered buildings, and in areas where wood is not covered. The drip tracks as well as the cylinders are located in covered buildings. CCA treated wood undergoes another process to further stabilize the impregnated wood. Wood is placed into a dedicated "fixer" cylinder whereby steam and pressure are used to "fix" the CCA to minimize the potential of leaching CCA constituents. This proprietary process has been shown to subsequently eliminate the leaching of these constituents.

## ***SITE HYDROGEOLOGIC SETTING***

The site is located in the Atlantic Coastal Plain Physiographic Province. This physiographic province is characterized by gently sloping, unconsolidated sediments deposited by sea level fluctuations. Underlying the site are sediments of the Columbia Group. These sediments are characterized as non-marine and consists of fine sands and silts (NUS, 1988).

Review of boring logs indicate that the underlying sediments are comprised primarily of sand (fine to coarse grained) with trace amounts of clay, silt and gravels. Interbeds of silt and clay were also noted to occur as well as some development of silt or clay layers.

Groundwater is unconfined over the site. Depth to groundwater ranges from 20 to 30 feet below ground surface and is found at an elevation range from approximately 112 feet to 118 feet above mean sea level (Keystone, 1992). Though small fluctuations in groundwater elevations have been noted over the site, the overall groundwater flow pattern is from northwest to southeast. Groundwater velocity was calculated at 1.34 feet/year. Groundwater velocity is based on a hydraulic conductivity (K) of 0.20 ft/day (determined from a pumping test), an effective porosity value of 0.25 and an average hydraulic gradient of 0.0046 feet/feet.

## ***EXISTING GROUNDWATER MONITORING PROGRAM***

As part of the RCRA Post-Closure Care activities for two former surface impoundments, WPI will be monitoring groundwater quality. The groundwater monitoring program for the Post-Closure Care activities has been accepted by the Virginia Department of Environmental Quality and has been incorporated into WPI's Enforcement Order for Post-Closure Care (August 1994).

In summary, 11 wells (M-2, M-4, M-5A, M-5C, M-6A, M-6C, M-8A, M-10A, M-13, M-15, and M-20) in two zones ("A" and "C") are being monitored quarterly for site-specific organic compounds and inorganic analytes. In addition to the quarterly groundwater monitoring program, samples from four monitoring wells (M-5A, M-6A, M13, and M-15) will be analyzed annually for the Appendix 1X constituents. Table 1 summarizes the analytical program.

The first zone monitored is the "A" zone and represents wells screened at the water table surface. A total of 20 wells are screened in this zone. Screened intervals of these wells generally range from 24 to 41.5 feet. The second zone that is screened is the "B" zone. This zone lies immediately below the "A" zone and is characterized by wells screened at intervals ranging in depth from 38 to 51.5 feet. A total of four wells are screened in the "B" zone. The "C" zone represents the deepest monitoring level in the aquifer and both wells screened in this zone will be monitored. The two wells screened

in this zone are M-5C, screened from approximately 80.2 to 90.2 feet, and M-6C, screened from 57.5 to 67.5 feet.

WPI is required to conduct quarterly groundwater monitoring for a period of 24 years. Each quarter groundwater quality data along with site-wide groundwater elevation data will be submitted to the VDEQ. Statistical analyses of the data to evaluate changes in the quality of groundwater will also be conducted. Results of this evaluation will be presented annually.

Additionally, it should be noted that WPI has monitored groundwater quality since 1984.

#### ***GROUNDWATER USAGE***

WPI currently pumps groundwater from wells P-1, P-2, P-3, M-12, and M-14. Pumping groundwater from these five wells fulfills two objectives which includes removing groundwater impacted with wood treating constituents and provides a source of water for the CCA wood treating process. WPI is currently pumping approximately 20,000 gallons of groundwater per week (approximately 2 gpm).

Influences from pumping have not been determined but will be evaluated during the Post-Closure Care groundwater monitoring and will be provided as part of NPDES monitoring.

**TABLE 1**

**SUMMARY OF WELL SAMPLING FREQUENCY  
AND ANALYSES**

<u>Wells (11)</u>	<u>Frequency of Sampling</u>	<u>Parameters</u>
M-2, M-4, M-5A, M-5C, M-6A, M-6C, M-8A, M-10A, M-13, M-15, M-20	Quarterly	pH, conductivity total organic carbon, total organic halogens, polynuclear aromatic hydrocarbons(8310), acid extractable phenolics (8040A), total phenols (9066), arsenic, chromium, copper
<u>Wells (4)</u>	<u>Frequency of Sampling</u>	<u>Parameters</u>
M-5A, M-6A, M-13, M-15	Annually	pH, conductivity, volatile organic compounds (8240), semi-volatile organic compounds (8270), pesticides (8080), pesticides (8141), herbicides (8150), PCDD/PCDF (8280), metals (various methods): antimony, barium, beryllium, cadmium, cobalt, lead, mercury, potassium, nickel, selenium, silver, thallium, tin, vanadium, and zinc; cyanide (9010A), and sulfide (9030A)

**Note:**

- Filtered and unfiltered metals required.
- Samples from wells M-5A, M-6A, M-13 and M-15 will be analyzed for acid extractable phenolics and polynuclear aromatic hydrocarbons by Methods 8310, 8040A and 8270A. The lab must report the quarterly constituents by Method 8270A during the annual sampling event.
- Groundwater elevations must be measured for the following monitoring wells: M-1, M-3, M-5B, M-6B, M-7, M-8, M-9, M-10B, M-11, M-16, M-17, M-18, and M-19.

---

## PROPOSED NPDES GROUNDWATER MONITORING PLAN

### SECTION 2

### GROUNDWATER MONITORING PLAN

#### **IDENTIFICATION OF MONITORED AREAS**

The NPDES permit indicates a groundwater monitoring plan will be developed for purposes of evaluating groundwater impacts from the wood preserving facility and the woodyard runoff. The treating plant and treated lumber storage areas (from 1991 to 1994) are shown on Figure 1. It should be noted that many areas used for treated lumber storage are covered. Since treated lumber stored in these areas are covered, the potential of direct contact with precipitation, and subsequently runoff, is minimized.

Areas exist where treated lumber has been stored or is currently stored without cover. Poles treated with CCA are stored west of the treating plant. As previously discussed, CCA treated wood is "fixed" prior to being stored, eliminating the potential of leaching CCA constituents and the likelihood of conveying of CCA impacted runoff.

#### **EXISTING WELL NETWORK**

WPI currently has a network of 26 wells installed to monitor site groundwater quality conditions. Locations of these wells are shown on Figure 1. The existing well network was developed to monitor groundwater quality upgradient and downgradient of two former impoundments.

The monitoring well network includes 20 "A" zone wells, 4 "B" zone wells and 2 "C" zone wells. The purpose of the "A" zone wells are to monitor shallow groundwater quality conditions. Should a release occur, the "A" zone wells represents points where the release would be detected since these were screened near the water table surface. These wells are horizontally distributed over a large portion of the eastern part of the property. The "B" zone wells represent intermediate points screened in the aquifer. Deeper vertical coverage in the aquifer is attained with these points. Finally, the deepest groundwater monitoring points are the "C" zone wells. These wells provide a comparison of groundwater quality data between the "A" and "C" zones in the event a release is detected and to provide data to assess whether impacts have occurred with depth. In addition, well nests ("A," "B," and "C" zone wells located side-by-side) also provide information to determine vertical hydraulic gradients to assess vertical movement of groundwater and subsequently constituent migration should constituents be observed.



## **GROUNDWATER MONITORING PROGRAM**

The purpose of the NPDES monitoring program is to evaluate impacts to groundwater quality from the treating plant and treated lumber storage areas. In overview, the proposed approach for monitoring groundwater quality involves the following:

- Provide results of groundwater quality data collected during Post-Closure Care groundwater monitoring to assess groundwater quality;
- Continually evaluate groundwater quality data collected from the Post-Closure Care groundwater monitoring to determine data trends for purposes of assessing effectiveness of the groundwater monitoring network; and
- Collect and analyze soil samples in areas of uncovered treated lumber storage to determine whether these areas represent locations where monitoring wells are required.

Each point is discussed below.

### **Proposed Monitoring Program**

WPI proposes to use groundwater quality data collected during the Post-Closure Care activities to assess groundwater quality at the site for the purpose of the NPDES requirements. During Post-Closure Care activities, a total of 11 monitoring wells will be sampled. These include nine "A" zone and two "C" zone wells. The "A" zone wells include M-2, M-4, M-5A, M-6A, M-8A, M-10A, M-13, M-15, and M-20. The "C" zone wells include M-5C and M-6C. Groundwater data collected during this monitoring program will be used to evaluate groundwater quality.

Wells are situated at locations downgradient of some areas specified in the NPDES permit. Three wells (M-5A, M-5C, and M-15) being sampled are located hydraulically downgradient of the treating plant. Under the Post-Closure Care program, these wells are intended to monitor groundwater quality immediately downgradient of a former cement lined impoundment that has been closed and capped. To determine whether the treating plant is impacting groundwater, data from these three wells will be evaluated in terms of trends.

Well M-2, located hydraulically downgradient of some uncovered treated wood storage areas, will provide data to assess groundwater quality downgradient of these areas. Wells M-6A, M-6C, and M-13 are located downgradient of a former spray evaporating unit that has been capped. These locations are downgradient of uncovered treated wood areas. Groundwater quality data from these three wells will provide additional data to assess groundwater quality at locations further downgradient from the uncovered treated wood storage areas. Data will be evaluated in terms of assessing groundwater quality from uncovered treated lumber storage areas that may be hydraulically upgradient of these wells.

One well (M-10A) is located adjacent to a covered treated wood storage area. In general, this well is located hydraulically downgradient of a portion of the treated lumber storage area, though review of groundwater flow patterns suggest that, during certain periods of the year, flow direction may be slightly altered (Keystone Environmental Resources, 1992). This well will provide data to assess groundwater quality in areas where treated wood is stored under roof. This data may be extrapolated to other locations on site to evaluate whether additional data points are required at locations downgradient of covered treated wood storage areas. This evaluation as well as any evaluation must consider the historical site groundwater quality data.

### ***Uncovered Treated Wood Storage Areas***

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WPI proposes a phased approach for evaluating the uncovered treated wood storage areas to assess whether these areas could potentially impact groundwater. Conceptually, constituent migration from treated wood storage areas requires constituents to be leached from treated wood by rainwater. This runoff is then introduced to the unsaturated zone via infiltration which potentially can enter the groundwater or saturated zone. The runoff from the uncovered treated wood areas represents the media that would convey constituents from the treated wood to site soil and potentially into groundwater. Therefore, by analyzing the runoff for constituents, an evaluation can be made whether leaching is occurring.

WPI currently collects NPDES samples at two outfalls (001 and 002). Outfall 001 receives runoff from the majority of the site area, whereas outfall 002 receives runoff from the southern portion of the site. The samples are collected monthly during or immediately following a rainfall event. The analytical data from the runoff samples will be used to assess potential constituent impacts that may be contained in the runoff. Due to the large area which is drained through outfall 001, WPI will determine whether it is possible to isolate uncovered storage areas to determine the potential for impacted runoff from each area. If it is feasible, then WPI will propose additional rainfall event sampling to further assess the impacts of uncovered storage areas. If an uncovered treated wood storage area is noted to have a surface water impact, then WPI will initiate sampling of surficial soils. The soil samples will provide data to assess constituent levels in soils and will provide a means to inspect soils in areas of uncovered treated wood storage.

In the event it is deemed necessary to sample surficial soils, a sampling plan will be prepared and submitted to the State Water Control Board for review. This plan would provide information on the soil sampling depths, analyses, and number of samples.

## ***Data Evaluation***

Data will be evaluated to assess groundwater quality conditions. The data evaluation will rely on determining trends (decrease or increase in constituent concentrations) from groundwater samples collected. It is recommended that this evaluation is done annually since a large data base is required to perform these analyses. Also included in the evaluation will be the influences of groundwater pumping in this area. Based on this evaluation, recommendations will be made.

## ***GROUNDWATER ANALYSES***

The Post-Closure Care groundwater analytical program requires quarterly analyses for total organic carbon (TOC), total organic halogenated hydrocarbons (TOX), site-specific polynuclear aromatic hydrocarbons (PAHs), site-specific acid extractable phenolics, total phenols, and total and dissolved arsenic, chromium and copper. Field measurements of pH, specific conductivity and temperatures will also be conducted.

Four groundwater samples (M-5A, M-6A, M-13, M-15) will be collected and analyzed for the Appendix IX parameter list. This list includes volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides, herbicides, PCDD/PCDF, cyanide, sulfide, and total and dissolved antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, potassium, selenium, silver, thallium, tin, vanadium, and zinc. Specific conductivity, pH, and temperature will be conducted in the field.

Table 1 summarized the analytical program.

## ***REPORTING***

Groundwater analytical results will be reported on a quarterly basis. The groundwater results will provide results of the groundwater samples collected as well as groundwater flow maps. A short narrative description will also be provided describing the results of the analyses and recommendations based on the data.

In addition, the quarterly reports will also provide the results of any surface runoff samples collected at the two outfalls. If additional sampling (specific area runoff samples or soil samples) is conducted, the results of these samples will be made available to the State Water Control Board.

## ***SCHEDULE***

Groundwater sampling will be conducted quarterly, in accordance with the Post-Closure Care activities. Approximately one month will be required for receipt and review of the data and report preparation. Upon completion of the report, a copy will be sent to the State Water Control Board's Kilmarnock office for review.

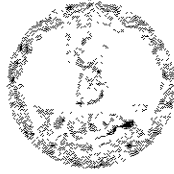
### ***FUTURE ACTIVITIES***

The proposed NPDES groundwater monitoring program is closely tied to the Post-Closure Care groundwater monitoring program. In the event changes are required in the Post-Closure Care groundwater monitoring program, WPI will notify the State Water Control Board of these changes and how these changes influence the NPDES groundwater monitoring program.

## ***REFERENCES***

Keystone Environmental Resources, 1991 Annual RCRA groundwater Monitoring Summary, February 1992.

NUS Corporation, Site Inspection of Wood Preservers, Inc. December 1988,



# *COMMONWEALTH of VIRGINIA*

## *DEPARTMENT OF ENVIRONMENTAL QUALITY* **PIEDMONT REGIONAL OFFICE**

L. Preston Bryant, Jr.  
Secretary of Natural Resources

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David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

### **VIRGINIA WASTE MANAGEMENT BOARD ENFORCEMENT ACTION – AMENDMENT TO ORDER BY CONSENT ISSUED TO WOOD PRESERVERS, INC. EPA I.D. No. VAD003113750**

#### **SECTION A: Purpose**

This is a Consent Order issued under the authority of Va. Code § 10.1-1455, between the Virginia Waste Management Board ("Board") and Wood Preservers, Inc., regarding the Wood Preservers, Inc. Warsaw facility, for the purpose of ensuring compliance with the Virginia Waste Management Act and the applicable regulations.

#### **SECTION B: Basis for Amendment**

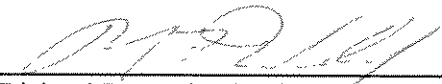
1. On September 30, 1994, the Board issued Wood Preservers, Inc. a Consent Order ("1994 Order") regarding post-closure care for the hazardous waste surface impoundments closed as landfills at the Wood Preservers, Inc. Warsaw facility ("Facility"). The order was necessary because at that time, Wood Preservers could not meet its obligation for financial assurance as prescribed by 40 CFR §264 Subpart H. The Order required that Wood Preservers follow a 12 year payment schedule in order to meet its financial assurance obligations. Appendix A of the 1994 Order incorporated the post-closure care plan for the Facility.
2. On September 25, 1998, the Board modified Appendix A of the 1994 Order to incorporate groundwater corrective action requirements for the Facility.
3. On February 10, 2009, Wood Preservers requested a modification to Attachment L of its post-closure care plan. The modification request was made in accordance with the United States Environmental Protection Agency's Burden Reduction Initiative Final Rule, which has been adopted by the Commonwealth of Virginia.

4. The revised Attachment L of the post-closure care plan is incorporated as Appendix A of this Amended Order. All terms of the 1994 Order and all other portions of the modified Appendix A issued on September 25, 1998 remain in effect.

**SECTION C: Agreement and Order**

Accordingly, by virtue of the authority granted it in Va. Code § 10.1-1455, the Board orders Wood Preservers, Inc., and Wood Preservers, Inc. agrees to abide by Appendix A of this Amendment, which supersedes Attachment L of the modified Appendix A issued on September 25, 1998. Both the Board and Wood Preservers, Inc. understand and agree that this Amendment does not alter, modify, or amend any other provision of the 1994 Consent Order or the modified Appendix A issued on September 25, 1998, and that the unmodified provisions of these documents remain in effect by their own terms.

And it is so ORDERED this 21<sup>st</sup> day of December, 2009.

  
\_\_\_\_\_  
Richard F. Weeks, Regional Director  
Department of Environmental Quality

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Wood Preservers, Inc. voluntarily agrees to the issuance of this Amendment.

By: William M. Wright CEO

Date: 11-3-09

Commonwealth of Virginia

City/County of Richmond

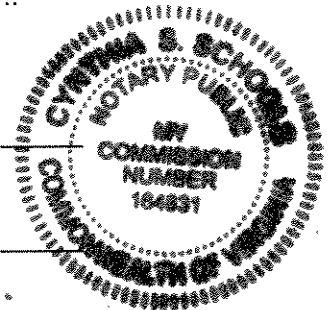
The foregoing document was signed and acknowledged before me this 3rd day of

November, 2009, by William M. Wright, who is  
(name)

CEO  
(title) of Wood Preservers, Inc., on behalf of Wood Preservers, Inc..

Cynthia S. Scholz  
Notary Public

My commission expires: January 31, 2011  
My Commission Expires January 31, 2011





## APPENDIX A

### ATTACHMENT L

#### APPENDIX IX TO 40 CFR PART 264 GROUNDWATER MONITORING CONSTITUENTS AND REQUIRED ANALYTICAL METHODS

<u>PARAMETERS</u>	<u>SW-846, 3<sup>RD</sup> EDITION METHOD</u>	<u>POL µg/l</u>
Acenaphthene	8270D	10
Acenaphthylene	8270D	10
Antimony (total)	6010B	100
Arsenic (total)	6010B	1
Benzo [a] anthracene	8270D	0.13
Benzo [b] fluoranthene	8270D	0.18
Benzo [k] fluoranthene	8270D	0.17
Benzo [ghi] perylene	8270D	0.76
Benzo [a] pyrene	8270D	0.23
Beryllium (total)	6010B	10
Cadmium (total)	6010B	10
p-Chloro-m-cresol	8270D	3.6
2-Chlorophenol	8270D	3.1
Chromium (total)	6010B	1
Chrysene	8270D	1.5
Cobalt (total)	6010B	10
Copper (total)	6010B	1
m-Cresol	8270D	10
o-Cresol	8270D	10
p-Cresol	8270D	10
Dibenz (a,h) anthracene	8270D	0.3
2, 4-dichlorophenoxy acetic acid (2, 4-D)	8151A	1.4

<u>PARAMETERS</u>	<u>SW-846, 3<sup>RD</sup> EDITION METHOD</u>	<u>POL µg/l</u>
Diphenylamine (Carbazole)	8270D	10
2, 4-Dimethylphenol	8270D	6.3
2, 4-Dinitrophenol	8270D	50
2-sec-Butyl-4, 6-dinitrophenol (Dinoseb; DNBP)	8151A	5.4
Fluoranthene	8270D	2.1
Indeno (1, 2, 3-cd) pyrene	8270D	0.43
Lead (total) ^	6010B	10
Naphthalene	8270D	0.6
Pentachlorophenol	8151A	5
Phenol	8270D	50
Silvex (2, 4, 5-TP)	8151A	1
2, 3, 4, 6-Tetrachlorophenol	8270D	10
Thallium (total)	6010B	50
2, 4, 5-Trichlorophenol	8270D	10
2, 4, 5-Trichlorophenoxyacetic acid (2, 4, 5-T)	8151A	1

All methods are as described in EPA's SW-846, *Test Methods for Evaluating Solid Waste, Third Edition*.

^ Only required for Monitoring Well M-12



# *COMMONWEALTH of VIRGINIA*

## *DEPARTMENT OF ENVIRONMENTAL QUALITY*

### PIEDMONT REGIONAL OFFICE

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Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Michael P. Murphy  
Regional Director

## **VIRGINIA WASTE MANAGEMENT BOARD ENFORCEMENT ACTION – AMENDMENT TO ORDER BY CONSENT ISSUED TO WOOD PRESERVERS, INC. EPA I.D. No. VAD003113750**

### **SECTION A: Purpose**

This is a Consent Order issued under the authority of Va. Code § 10.1-1455, between the Virginia Waste Management Board (“Board”) and Wood Preservers, Inc., regarding the Wood Preservers, Inc. Warsaw facility, for the purpose of ensuring compliance with the Virginia Waste Management Act and the applicable regulations.

### **SECTION B: Basis for Amendment**

1. On September 30, 1994, the Board issued Wood Preservers, Inc. a Consent Order (“1994 Order”) regarding post-closure care for the hazardous waste surface impoundments closed as landfills at the Wood Preservers, Inc. Warsaw facility (“Facility”). The order was necessary because at that time, Wood Preservers could not meet its obligation for financial assurance as prescribed by 40 CFR §264 Subpart H. The Order required that Wood Preservers follow a 12 year payment schedule in order to meet its financial assurance obligations. Appendix A of the 1994 Order incorporated the post-closure care plan for the Facility.
2. On September 25, 1998, the Board modified Appendix A of the 1994 Order to incorporate groundwater corrective action requirements for the Facility.
3. On December 21, 2009, the Board modified Appendix A of the 1998 Order to incorporate the modified Attachment L of the Facility’s post-closure care plan.
4. On June 16, 2010, Wood Preservers requested a modification to the Facility’s post-closure care plan including Attachments A, L, and N. The modification request was made

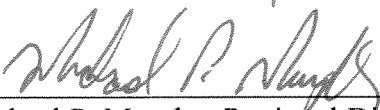
in accordance with the United States Environmental Protection Agency's Burden Reduction Initiative Final Rule, which has been adopted by the Commonwealth of Virginia.

5. Appendix A of this Amended Order has been updated to reference the approved post-closure care plan rather than incorporating it as part of the Order. All terms of the 1994 Order and all other portions of the modified Appendix A issued on September 25, 1998 remain in effect.

### **SECTION C: Agreement and Order**

Accordingly, by virtue of the authority granted it in Va. Code § 10.1-1455, the Board orders Wood Preservers, Inc., and Wood Preservers, Inc. agrees to abide by Appendix A of this Amendment, which supersedes Appendix A issued of the issued Order Amendment on December 21, 2009, the modified Appendix A issued on September 25, 1998, and Appendix A of the 1994 Order. Both the Board and Wood Preservers, Inc. understand and agree that this Amendment does not alter, modify, or amend any other provision of the 1994 Order and that the unmodified provisions of the 1994 Order remain in effect by their own terms.

And it is so ORDERED this 11 day of JANUARY, 2011.

  
\_\_\_\_\_  
Michael P. Murphy, Regional Director  
Department of Environmental Quality

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Wood Preservers, Inc. voluntarily agrees to the issuance of this Amendment.

By: [Signature]

Date: November 24, 2010

Commonwealth of Virginia

City/County of Richmond

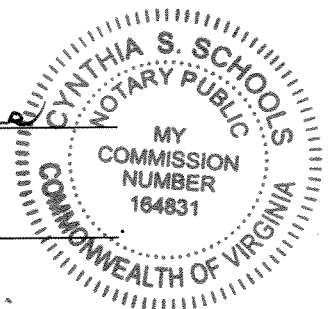
The foregoing document was signed and acknowledged before me this 24<sup>th</sup> day of

November, 2010, by W. Morgan Wright, who is  
(name)

President of Wood Preservers, Inc., on behalf of Wood Preservers, Inc..  
(title)

Cynthia S. Schools  
Notary Public

My commission expires: January 31, 2011



My Commission Expires January 31, 2011

## **APPENDIX A**

1. Wood Preservers, Inc. shall comply with the post-closure care plan approved for the facility as incorporated in the 1994 Order, the September 25, 1998 Modification, the December 21, 2009 Order Amendment, and the Modified Attachments K, L, N received on June 16, 2010. Wood Preservers, Inc. shall not alter, amend, or change the post-closure care plan without prior DEQ review and approval. If DEQ reviews and approves an amendment to the post-closure care plan for the facility, the Wood Preservers, Inc. shall comply with the amended post-closure care plan.

**MODULE I**  
**STANDARD CONDITIONS**

I.A. **HIGHLIGHTS**

This Order has been developed for WPI to monitor two closed hazardous waste units at the facility located in Warsaw, Virginia at latitude 37°58'36" North and longitude 76°44'11" West during the period prior to Post-closure Permit issuance. Hazardous Waste Management at the above facility is currently limited to the following activity: maintenance and monitoring of one (1) capped surface impoundment and one (1) capped spray evaporation impoundment (surface impoundment) containing hazardous waste (K001 Sludge) as specified in this Order.

I.B. **APPLICABLE REGULATIONS**

This Order consists of the conditions contained herein (including those in any attachments) and the applicable regulations contained in 9 VAC 20-60 *et seq.*, as specified in this Order. Applicable regulations are those in effect on the effective date of this Order.

I.C. **DEFINITIONS**

For the purpose of this Order, all terms used herein shall have the same meaning as those in 9 VAC 20-60-14 *et seq.*, unless this Order specifically states otherwise. Where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

I.D. **REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR**

I.D.1 The Department will review plans, reports, schedules, and other documents (hereinafter collectively referred to as "submission") submitted which require Department approval. The Department will notify WPI in writing of Department's approval or disapproval of each submission.

I.D.2 Two (2) complete copies of all notifications or other submissions which are required by this Post-closure Plan (Plan) to be sent or given to the Director of the Department shall be sent certified mail or be hand delivered to:

Mailing Address:

Virginia Department of Environmental Quality  
Office of Waste Permitting and Compliance  
Attn: Leslie Romanchik  
629 East Main Street  
Richmond, Virginia 23219

And one (1) copy to:

Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060

I.D.3. The Department will review the submissions which require Department or Director approval and notify WPI in writing of the approval or disapproval of each submission.

I.D.4. Each submission required under the schedule of compliance or required by this Plan (with the exception of data reports) is, upon approval by the Director, incorporated into this Plan. Any noncompliance with approved submissions shall be deemed noncompliance with this Plan.

I.E. SIGNATORY REQUIREMENTS

All notifications and submissions required by this Order and other information requested by the Director shall be signed and certified in accordance with; 40 CFR §270.11 as if submitted pursuant to a permit.

I.F. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

I.F.1. WPI shall maintain at the facility, until post closure care is completed and certified by the owner/operator and an independent professional engineer registered in Virginia, the following documents and amendments, revisions and modifications to these documents:

- a. Personnel training documents and records required by 40 CFR §264.16 and this Order.
- b. Annually adjusted cost estimate for facility post closure care required by 40 CFR §264.144.
- c. Operating record required by 40 CFR §264.73, Post-closure Plan Condition II.F.1. and Post-closure Plan Module III.
- d. Inspection schedules and logs required by 40 CFR §264.15(b)(2) and §264.15(d), and Post-closure Plan Attachment H.
- e. Groundwater sampling and analysis plan required by 40 CFR §264.101 and this Order.
- f. Groundwater monitoring results required by 40 CFR §264.73(b)(6) and this Order.
- g. All other documents required by Post-closure Plan Conditions I.G.5., G.9., and G.10.

I.G. DUTIES AND REQUIREMENTS

I.G.1. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for WPI in an enforcement action to argue that it would have been necessary to halt or reduce the hazardous waste management activity allowed under this Order to maintain compliance with the conditions of this Order.



I.G.2. Proper Operation and Maintenance

WPI shall at all times properly operate and maintain all facilities and systems of the treatment and controls (and related appurtenances) which are installed or used by WPI to achieve compliance with the conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls; including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to maintain compliance with the conditions of this Order.

I.G.3. Duty to Provide Information

WPI shall furnish to the Director within a reasonable time, any relevant information which the Director may request to determine whether cause exists for modifying or terminating this Order, or to determine compliance with this Order. WPI shall also furnish the Director, upon request, copies of records required by this Order.

I.G.4. Inspection and Entry

WPI shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

- a. Enter at reasonable times upon WPI's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
- c. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- d. Sample or monitor, at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by 9 VAC 20-60 *et seq.*, any substance or parameters at any location.

I.G.5. Monitoring and Records

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the material to be analyzed must be the appropriate method from 40 CFR §261 Appendix I or an equivalent method approved by the EPA. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846 (3rd edition, September 1986, as updated), Standard Methods of Wastewater Analysis, or an equivalent method approved by the EPA and specified in the attached Sampling and Analysis Plan (Post-closure Plan Attachment J).

- b. WPI shall retain at the facility, records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Order, and records of all data used to complete the post-closure permit application for a period of at least three (3) years from the date of the sample collection, measurement, report or record. WPI shall maintain records from all groundwater monitoring wells and associated static water level surface elevations for the duration of the post-closure care period. These periods may be extended by the Director at any time and are automatically extended during the course of any unresolved enforcement actions.
- c. Records of monitoring information shall specify:
  - 1. the date, exact place, and time of sampling or measurements;
  - 2. the individual(s) who performed the sampling or measurements;
  - 3. the date(s) the analyses were performed;
  - 4. the individual(s) who performed the analyses;
  - 5. the analytical techniques or methods used; and
  - 6. the results of such analyses.

I.G.6. Reporting Planned Changes

WPI shall give notice to the Director as soon as possible of any planned physical alterations or additions to the facility. This notice shall include a detailed description of all incidents of noncompliance reasonably expected to result from the proposed changes.

I.G.7. Anticipated Noncompliance

WPI shall give advance notice to the Director of any planned changes in the facility or activity which may result in noncompliance with the requirements of this Order.

I.G.8. Twenty-four Hour Reporting

WPI shall report to the Director any non-compliance which may endanger human health or the environment. Any such information shall be provided verbally within 24-hours from the time WPI becomes aware of the circumstances. The information specified in a. and b. below shall be included as information which shall be reported verbally within 24 hours:

- a. Information concerning the release of any hazardous waste that may endanger public drinking water supplies shall be reported.
- b. Any information of a release or discharge of hazardous waste, or of a fire or explosion at the facility, which could threaten the environment or

human health. The description of the occurrence and its cause shall include at least the following:

1. Name, address, and telephone number of the owner or operator;
2. Name, address, and telephone number of the facility;
3. Date, time, and type of incident;
4. Name and quantity of material(s) involved;
5. The extent of injuries, if any;
6. An assessment of actual or potential hazard to human health and the environment outside the facility, where this is applicable; and
7. Estimated quantity and disposition of recovered material that resulted from the incident.

- a. A written submission shall also be provided to the Director within five (5) days of the time WPI becomes aware of the circumstances. The written submission shall contain at a minimum the following:

1. a description of the noncompliance and its cause;
2. the periods of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated duration of the noncompliance; and
3. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

WPI need not comply with the 5-day written notice requirement only if the Director waives that requirement following the verbal notification required by Post-closure Plan Condition I.G.8. and WPI submits a written report within fifteen (15) days of the time WPI becomes aware of the circumstances.

I.G.9. Other Noncompliance

WPI shall report all other instances of noncompliance not otherwise required to be reported above, at the time monitoring reports are submitted. The reports shall contain at a minimum the information listed in Post-closure Plan Condition I.G.8.

I.G.10. Other Information

This Order is based on the assumption that the information submitted in the post-closure permit application attached to WPI's letter dated May 5, 1988, is accurate and that the facility will be maintained and/or operated as specified in this Order. Any inaccuracies found in the application may be grounds for modification of this Order and potential enforcement action. If WPI has failed to submit any relevant facts, or has submitted incorrect information, in its post-closure permit application or in any report to the Director, WPI shall promptly notify the Director of the error or omission.

## **MODULE II**

### **GENERAL FACILITY CONDITIONS**

II.A. **DESIGN AND OPERATION OF FACILITY**

WPI shall maintain and operate its facility, the location of which is shown by the location map, topographic map, and facility map (Post-closure Plan Attachments A, B, and C), to minimize the possibility of fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment.

II.B. **GENERAL WASTE ANALYSIS**

A list of all wastes which were ever known to have been discharged to the closed cement-lined surface impoundment and closed earthen-lined spray evaporation impoundment is provided in the List of Wastes, Post-closure Plan Attachment D. This list is based upon information provided by the facility.

II.C. **SECURITY**

WPI shall comply with the security provisions of 40 CFR §264.14. The security provisions shall follow the requirements described in Post-closure Plan Attachments E and G.

II.D. **GENERAL INSPECTION REQUIREMENTS**

WPI shall follow the inspection plan set out in Post-closure Plan Attachment H. WPI shall remedy any deterioration or malfunction discovered by an inspection (40 CFR §264.15). Inspection records shall be kept as required by 40 CFR §264.15(d).

II.E. **PERSONNEL TRAINING**

WPI shall conduct required personnel training (40 CFR §264.16). This training program shall follow Post-closure Plan Attachment I, and WPI shall maintain training documents and records (40 CFR §264.16(d)).

II.F. **RECORDKEEPING AND REPORTING**

II.F.1. **Operating Record**

WPI shall maintain a written operating record at the facility in accordance with 40 CFR §264.73.

II.F.2. **Required Reports**

WPI shall comply with all applicable reporting requirements as described in Post-closure Plan Conditions I.D. and I.G.

II.G. **COST ESTIMATE FOR FACILITY POST-CLOSURE**

II.G.1. **Annual Adjustment**

WPI must adjust the post-closure care cost estimate for inflation sixty (60) days prior to the anniversary date of the establishment of the post-closure trust fund, established pursuant to Post-closure Plan Condition VLB. and 40 CFR §264.144.

- II.G.2.      Adjustment for Changed Conditions  
WPI must revise the post-closure care cost estimate whenever there is a change in the facility's post-closure plans as required by 40 CFR §264.144(c).
- II.G.3.      Availability  
WPI must keep at the facility the latest post-closure care cost estimate as required by 40 CFR §264.144(d).
- II.H.        FINANCIAL ASSURANCE FOR FACILITY POST-CLOSURE  
WPI shall comply with all conditions and requirements contained in Post-Closure Plan Module VI to provide financial assurance for post-closure care.
- II.I.        INCAPACITY OF OWNER/OPERATOR, GUARANTORS, OR FINANCIAL INSTITUTIONS  
WPI shall comply with 40 CFR §264.148 whenever necessary.

### **MODULE III**

#### **POST-CLOSURE CARE**

#### III.A. HIGHLIGHTS

WPI shall continue post-closure care for the closed surface impoundment and spray evaporation impoundment identified in Post-closure Plan Conditions III.B.1. and III.B.2. for thirty (30) years after the date closure was certified in accordance with 40 CFR §264.118 (Post-closure Plan Attachment E). The approved closure and post-closure care plan is included as Post-closure Plan Attachment E, Appendix 1. The units were certified closed on September 19, 1988; therefore the post-closure care period will extend to September 19, 2018.

#### III.B. UNIT IDENTIFICATION

WPI shall provide post-closure care for the following hazardous waste management units, subject to the terms and conditions of this Order.

##### III.B.1. Surface Impoundment

The surface impoundment, while in operation, received wastewaters from the creosote and Chromium-Copper- Arsenic (CCA) treatment processes and generated K001 waste. The total capacity of the surface impoundment was 25,000 gallons. The dimensions and layout are shown in Post-closure Plan Attachment C. The impoundment underwent closure as a landfill whereby all the liquid wastes contained in it were removed from the impoundment surface which was then scraped and washed with kerosene and detergent. Closure certification for the unit was received on September 19, 1988.

##### a. Final Cover

The final cover consists of two feet of compacted clayey soil (barrier layer), overlain by a 12-inch thick gravel layer (drainage layer), and overlain by two feet of uncompacted loam which was then seeded with a mixture of Kentucky 31 Tall Fescue, Annual Rye, and Road Top Clover, German Foxtail Millet (vegetative layer). Hydraulic conductance and engineering specifications are found in Post-closure Plan Attachment E.

##### b. List of Wastes

The wastes involved have been identified in the List of Wastes, Post-closure Plan Attachment D.

##### c. Liner System Description

The surface impoundment was constructed with a three-inch thick cement liner that extended approximately four feet beyond the top of the berm.

##### d. Leachate Detection/Collection System

The surface impoundment was constructed with no leachate detection or leachate collection systems.

##### III.B.2. Spray Evaporation Impoundment

Wastewater was transferred to the spray evaporation impoundment following reclamation of creosote in the impoundment described in Post-closure Plan Condition III.B.1. The total capacity of the spray evaporation impoundment was approximately 56,300 gallons. The dimensions and layout are shown in the diagram of the units in Post-closure Plan Attachments C. The impoundment underwent closure as a landfill. As part of the closure activities, all sludge and discolored soil were removed and either reclaimed or disposed of in a permitted hazardous waste management facility. Closure certification was received on September 19, 1988.

a. Final Cover

The final cover consists of two feet of compacted clayey soil (barrier layer), overlain by a 12-inch thick gravel layer (drainage layer) and two feet of uncompacted loam which was then seeded with a mixture of Kentucky 31 Tall Fescue, Annual Rye, and Road Top Clover, German Foxtail Millet (vegetative layer). Hydraulic conductance and engineering specifications are found in Post-closure Plan Attachment E.

b. List of Wastes

The wastes involved have been identified in the List of Wastes, Post-closure Plan Attachment D.

c. Liner System Description

The spray evaporation impoundment was constructed with an earthen liner composed of soils with a permeability of approximately  $1 \times 10^{-6}$  cm/sec.

d. Leachate Detection/Collection System

The spray evaporation impoundment was constructed with no leachate detection or leachate collection systems.

III.C. POST-CLOSURE PROCEDURES AND USE OF PROPERTY

III.C.1. WPI shall conduct post-closure care for the hazardous waste management units listed in Post-closure Plan Condition III.B., for a period of thirty (30) years after final closure certification. The 30-year post-closure care period may be shortened upon application and demonstration, approved by the Director, that the facility is secure, or may be extended if the Department finds this necessary to protect human health and the environment in accordance with 40 CFR §264.117(a)(2).

III.C.2. WPI shall maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of 40 CFR Subpart F during the post-closure care period in accordance with 40 CFR §264.117(a).

III.C.3. WPI shall not allow any use of the units designated in Post-closure Plan Condition III.B. which would disturb the integrity of the final cover, liners, any components of the containment system, or the function of the facility's monitoring systems during the post-closure care period in accordance with 40 CFR §264.117(c).

III.C.4. WPI shall implement the Post-Closure Plan in accordance with Post-closure Plan Attachment E. All post-closure care activities must be conducted in accordance with the provisions of the Post-Closure Plan, and 40 CFR §264.117(d) and 40 CFR §264.118(b).

III.D. INSPECTIONS

WPI shall inspect the components, structures, and equipment at the site in accordance with the Inspection Requirements of Post-closure Plan Attachment H and 40 CFR §264.117(a)(1)(ii).

III.E. SECURITY

WPI shall maintain security at the facility during the post-closure care period, in accordance with this Order, Post-closure Plan Attachment G, and 40 CFR §264.117(b).

III.F. NOTICES AND CERTIFICATION

III.F.1. If WPI, or any subsequent owner or operator of the land upon which the hazardous waste disposal unit is located, wishes to remove hazardous wastes and hazardous waste residues, liners, if any, or contaminated soils, then it shall request a modification to this Order in accordance with the applicable requirements in section E.1.b. of this Order. WPI, or any subsequent owner or operator of the land, shall demonstrate that the removal of hazardous wastes will satisfy the criteria of 40 CFR §264.117(c).

III.F.2. No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, WPI shall submit by registered mail to the Director for approval a certification that the post-closure care for the hazardous waste disposal unit was performed in accordance with the specifications in the approved post-closure care plan. The certification must be signed by WPI and an independent, licensed, registered, Virginia-certified professional engineer. Documentation supporting the independent, registered professional engineer's license and certification must be furnished to the Director upon request until the Director releases WPI from the financial assurance requirements for post-closure care under 40 CFR §264.145.

III.G. FINANCIAL ASSURANCE

III.G.1. WPI shall maintain financial assurance during the post-closure care period in accordance with Post-closure Plan Module VI.

III.G.2. WPI shall demonstrate to the Director that the value of the financial assurance mechanism exceeds the remaining cost of post-closure care, in order for the Director to approve any release of funds.

III.G.3. WPI shall submit itemized bills to the Director when requesting reimbursement for post-closure care expenses in accordance with 40 CFR §264.145(a)(11).



## **MODULE IV**

### **COMPLIANCE GROUNDWATER MONITORING**

#### **IV.A. HISTORICAL OVERVIEW AND HIGHLIGHTS**

WPI implemented an interim status groundwater monitoring program in 1981. In 1983, during the interim status groundwater monitoring program, a statistical evaluation of the analytical data indicated a statistically significant difference in groundwater quality parameters (pH, TOC, TOX, and specific conductance) downgradient of the units. In 1984, the Phase I Groundwater Quality Assessment Program (GWQAP) was initiated at the site to begin addressing the groundwater at the units. In 1985, the Phase II GWQAP was implemented to delineate the lateral and vertical extent of the contaminant plume caused by the units. In 1986, following the Phase III GWQAP, the facility voluntarily began corrective action and in 1994 WPI completed the final phase of groundwater quality assessment.

WPI has determined that the closed surface impoundment and spray evaporation impoundment have affected groundwater quality beneath the RCRA units and in January 1995, concluded that the Groundwater Protection Standards (GPS) had been exceeded at the point of compliance. Therefore, groundwater corrective action and a groundwater monitoring program were required until the facility demonstrated compliance with GPS. The facility is presently conducting groundwater corrective action and groundwater monitoring.

This Order contains a Groundwater Monitoring Program as required under 40 CFR §264 Subpart F. With the Director's approval, monitoring shall be conducted under this program during corrective action and following the completion of corrective action at the regulated units. Therefore, requirements of the Compliance Groundwater Monitoring Program are deferred to Corrective Action Groundwater Monitoring (Module V).

## **MODULE V**

### **CORRECTIVE ACTION GROUNDWATER MONITORING**

#### V.A.

##### **HIGHLIGHTS**

In response to exceedances of Groundwater Protection Standards (GPS) at point of compliance wells at the closed spray evaporation pond and closed surface impoundment (units), Wood Preservers Incorporated (WPI) has implemented a corrective action program at the regulated units. In 1984, WPI implemented a groundwater extraction system downgradient of the two closed units to address groundwater contamination from the units. In 2005, WPI discontinued groundwater extraction at the closed spray evaporation pond and evaluated constituent concentration rebound. No rebound has been observed since then. The groundwater extraction system continues to operate at the closed surface impoundment. The extracted groundwater is piped directly to an on-site biological reactor for treatment and then is used as process make-up water. Neither treated nor untreated water is discharged.

Groundwater monitoring to evaluate the effectiveness of the corrective action at the closed surface impoundment and compliance with GPS at both units is ongoing. The groundwater monitoring program designed to evaluate the effectiveness of the corrective action program as well as compliance with the GPS is detailed in Post-closure Plan Condition VII.F. Reporting and recordkeeping requirements are presented in Post-closure Plan Condition VII.G.

#### V.A.1

##### **Groundwater Protection Standard Exceedances**

Since 1988, GPSs for both organic and inorganic constituents in groundwater at the point of compliance have been exceeded. These constituents included naphthalene, fluoranthene, m-creosol, p-creosol, o-creosol, copper, acenaphthene, acenaphthylene, benzene, total and dissolved copper, total chromium, and total arsenic were exceeded. Based on this, WPI implemented a corrective action program to clean up groundwater via groundwater extraction. Corrective action continues to be implemented at the units. However, in 2005 groundwater extraction was discontinued at the closed spray evaporation pond and groundwater monitoring has occurred since then to evaluate constituent rebound. No rebound has been observed since then.

#### V.A.2.

##### **Non-aqueous Phase Liquid Analysis**

Non-aqueous phase liquids have not been encountered in monitoring wells during the previous twenty two years of monitoring. However, should they be detected, the following procedures shall be followed.

##### a. **NAPL Detection**

Point of Compliance wells as well as Compliance Monitoring wells shall be monitored on a semi-annual basis for the presence of measurable floating NAPL layers.

1. Measurements shall be made using an Oil/water Interface Probe or a transparent bailer.
  2. NAPL thicknesses  $<0.01$  foot will be considered non-detectable.
  3. If NAPL  $\geq 0.01$  foot is detected in any monitoring well the Director will be immediately notified and a NAPL Remediation Program shall be submitted for review and approval within 60 days of the notification.
  4. Following approval, the NAPL Remediation Program shall be implemented and continued until no measurable NAPL is detected in any monitoring well.
- b. The Director's approval shall be obtained prior to discontinuing the NAPL Remediation Program.

V.A.3. Corrective Action Groundwater Monitoring

The groundwater monitoring program required during implementation of the groundwater corrective action at the point of compliance is based upon the former Compliance Monitoring Program modified as appropriate to meet the performance standards of the Corrective Action Program. The following groundwater monitoring conditions apply:

- a. Closed Surface Impoundment  
Semiannual monitoring shall be conducted at the point of compliance and compliance monitoring wells for all constituents on the Corrective Action Monitoring Constituent List (Attachment K). In addition, samples for the Appendix IX constituents (Attachment L) will be collected annually as specified in the conditions below. Specific requirements are found in Module V.C. below.
- b. Closed Spray Evaporation Pond  
Annual monitoring shall be conducted at the point of compliance and compliance monitoring wells for all constituents on the Corrective Action Monitoring List (Attachment K). Specific requirements are found in Module V.C. below.

V.A.4. Following completion of corrective measures specified in this plan and with the Director's approval to terminate corrective action, groundwater monitoring shall continue in accordance with these conditions.

V.B. OPERATION OF GROUNDWATER EXTRACTION SYSTEM

WPI has determined that the remedial option for reducing the groundwater contamination at the units is a groundwater extraction system. It is anticipated that modifications shall be made to the system as the site is remediated; therefore, the design, and modifications to the design approved by the Director, shall be incorporated by reference into this Order.

V.B.1. WPI shall construct, operate, and maintain the groundwater extraction system in accordance with the approved design. All modifications to the design shall be approved by the Director.

V.B.2. Remediation Objectives

The system shall be constructed and operated in accordance with the design approved by the Director. The remedial system shall be designed to achieve the following objectives:

- a. Reduction of contaminant concentrations at the point of compliance to levels below the Groundwater Protection Standards; and
- b. Prevention of continued migration of hazardous constituents in the aquifer both laterally and vertically.

V.B.3. Operation Specifications

The design parameters specified in the approved remedial system design shall be followed. The following design parameters shall be implemented and maintained in accordance with the remedial system design:

- a. location and number of extraction wells;
- b. pumping rates;
- c. radius of influence/capture zones;
- d. volume of extracted groundwater; and
- e. treatment technology for extracted groundwater system (if applicable).

V.B.4. Maintenance of Groundwater Extraction System

At least semi-annually, the operational status of the system will be evaluated.

- a. Actions taken for maintenance and repair of the system shall be recorded in the facility operating record. This information shall also be included in the annual monitoring report. Department approval is not required for actions taken for maintenance of system which do not modify the approved remedial system design.
- b. The Department shall be notified in writing when the system is taken off-line for equipment repair, replacement, or upgrade and the anticipated or actual duration is greater than 30 days. Periods less than 30 days shall be noted in the Operating Record and included in the annual monitoring report.

V.B.5. Modifications to Groundwater Extraction System Design

If during the implementation of the groundwater extraction system, modifications are required to either correct deficiencies or enhance performance, WPI shall submit a written request to the Director to modify the approved remedial system design.

- a. The Department shall be notified by letter of any proposed changes to the system at least thirty (30) days prior to the proposed date of the modification. The Department shall approve the proposed modifications prior to implementation. The following information shall be included, at a minimum, in the notification:
  1. Modification to be made;
  2. Justification/reason for modification;
  3. Proposed methods to evaluate the performance of the modified system; and
  4. Revised drawings and schematics, if appropriate.
- b. Modifications which are required for continued operation of the system shall be implemented immediately. The Director shall be notified in writing of the actions taken within fourteen (14) days. This notification shall contain a schedule for the submission of the corresponding design modification request.

V.B.6. Monitoring of Extracted Groundwater

A sample from the pumping wells shall be collected on a semi-annual basis using appropriate sampling equipment. This condition applies to pumping wells located at both units that are actively recovering groundwater only. The following information shall be obtained:

- a. Concentration of all constituents on the Corrective Action Monitoring Constituent List (Attachment K); and
- b. Concentrations of parameters as necessary to ensure proper operation of the system (i.e, iron, manganese, magnesium, and hardness).

V.B.7. Management of Extracted Groundwater

WPI shall monitor and manage the water from the groundwater extraction system in accordance with all applicable Virginia Hazardous Waste Regulations, the Clean Water Act, and other applicable regulations. Presently the extracted groundwater is treated and used as process make-up water and not discharged. However should this change the following conditions shall apply:

- a. The Director shall be notified immediately if changes to facility operations prevent WPI from treating and using the extracted water as process make-up water. The notification shall include information concerning the effect

of this change on the groundwater extraction program and proposed disposal options for the extracted groundwater.

- b. WPI is responsible for obtaining all applicable permits from the appropriate Permitting Authority. WPI shall have six months from the date of the Department's approval of the remedial system design modifications to obtain all necessary permits. This period may be extended by the Director if adequate justification is shown.
- c. If discharge to a Publicly Owned Treatment Works (POTW) is the disposal option selected, the final destination and written approval from the POTW Director shall be included in the approved remedial system design.

V.B.8. Evaluation of Groundwater Extraction Program

At least semi-annually, the effectiveness of the groundwater extraction system program shall be evaluated (40 CFR §264.100(g)). This information shall be included in the annual monitoring report. The following information shall be contained in the evaluation, if available:

- a. Information concerning maintenance and operation of the Groundwater Extraction system;
- b. Evaluation of cone of depression and capture zone;
- c. Levels of contaminants in extracted groundwater relative to background over time;
- d. Proposed modifications to system to enhance performance or to correct deficiencies/malfunctions;
- e. Analytical results of samples from the pumping wells; and
- f. Recommendations to discontinue program, if appropriate.

V.C. CORRECTIVE ACTION MONITORING PROGRAM

This program is based upon the former Compliance Monitoring Program modified as necessary to meet the performance standards for a Corrective Action Monitoring Program (40 CFR §264.100).

V.C.1. Monitoring Requirements

The Corrective Action Monitoring Program requires monitoring at specified upgradient well(s), downgradient point of compliance wells, pumping wells, and at designated compliance monitoring wells at least semi-annually for the closed surface impoundment and at least annually for the closed spray evaporation pond. Static groundwater elevations and total depths will be measured at all wells specified in Conditions V.C.1.a through e during each sampling event.

- a. Monitoring well M-2 is the upgradient (background) well for both of the closed units and shall be sampled at least semi-annually;
- b. Point of compliance well M-5A located at the closed surface impoundment shall be sampled at least semi-annually and M-6A located at the closed spray evaporation pond shall be sampled at least annually;
- c. Pumping Wells P-4 and M-14 located at the closed surface impoundment shall be sampled at least semi-annually;
- d. In addition to the wells specified above, compliance monitoring well M-4 located at the closed surface impoundment shall be sampled at least semi-annually and M-8A located at the closed spray evaporation pond shall be sampled at least annually; and
- e. M-1, M-4, M-5B, M-5C, M-6B, M-6C, M-7, M-8B, M-9, M-10A, M-10B, M-11, M-12, M-13, M-15, M-16, M-17, M-18, M-19, M-20, and P-2 will be used only to measure groundwater elevations during each sampling event.

V.C.2. The upgradient well (M-2), point of compliance wells (M-5A and M-6A), compliance monitoring wells (M-4 and M-8A), and pumping wells (M-14 and P-4) will be sampled in accordance with the Sampling and Analysis Plan (Attachment J) or in accordance with alternate procedures approved by the Director prior to usage at the following schedule:

- a. Closed Surface Impoundment  
The upgradient well, point of compliance well, compliance well, and pumping wells at the closed surface impoundment and specified in V.C.1.a through d. shall be sampled at least semi-annually for the constituents specified in Attachment K. Sample analysis for each constituent shall be conducted using the EPA SW-846 Methods specified in Attachment K. Pumping well P-4 located at the point of compliance shall be sampled at least annually for the constituents specified in Attachment L. Sample analysis for each constituent shall be conducted using EPA SW-846 Methods specified in Attachment L;
- b. Closed Spray Evaporation Pond  
The upgradient well, point of compliance well, and compliance well at the closed spray evaporation pond and specified in V.C.1.a through d. shall be sampled at least annually for all constituents listed specifically for the closed spray evaporation pond in Attachment K. Sample analysis for each constituent shall be conducted using the EPA SW-846 Methods specified in Attachment K;

V.C.3. Continuing Plume Assessment

If constituents on the Corrective Action Monitoring List not previously identified are detected at levels above background in the point of compliance or compliance

monitoring wells specified in Condition V.C.1., WPI shall take appropriate action to further define the vertical and horizontal extent of contamination and the following conditions in accordance with 40 CFR §264.97 and 40 CFR §264.99..

- a. WPI shall notify the Director in writing within seven (7) days of determining that an additional constituent was detected at levels above background in any downgradient well;
- b. If WPI chooses to attempt a resampling demonstration, this intent and a brief description of proposed resampling activities shall be included in the notification required above. Resampling shall be completed within thirty (30) days of the date that the data is available from the laboratory;
- c. If the results of the resampling indicate that the increase was valid or no resampling is conducted, WPI shall submit to the Director a plan outlining measures that will be taken to further define the vertical and horizontal extent of the constituent in the groundwater downgradient of the unit. This plan shall be submitted within thirty (30) days of the notification required above.
- d. Unless specific approval is granted by the Director in advance, all monitoring wells installed in accordance with this Condition shall be sampled in accordance with Condition V.C.2 at least semi-annually following installation and pending any appropriate modification to the Corrective Action Monitoring Program.
- e. Appropriate modifications to the Corrective Action Monitoring Program shall be proposed following the installation of any additional wells and/or as required to meet the performance standards of the monitoring program.

V.C.4. Well Location, Installation and Construction

WPI shall maintain the groundwater monitoring system as specified below:

- a. WPI shall maintain the 25 existing monitoring wells: M-1, M-2, M-4, M-5A, M-5B, M-5C, M-6A, M-6B, M-6C, M-7, M-8A, M-8B, M-9, M-10A, M-10B, M-11, M-12, M-13, M-14, M-15, M-16, M-17, M-18, M-19, and M-20 at the locations shown on the site plan (Attachment B).
  1. Boring logs for the monitoring wells are included as Attachment P.
  2. Monitoring well design and construction details for the monitoring wells are included as Attachment P.
- b. The groundwater monitoring network required by this plan must yield samples in upgradient well(s) that represent the quality of the background groundwater unaffected by leakage from any regulated unit and yield samples in downgradient wells that represent the quality of groundwater passing the point of compliance.



- c. WPI shall maintain wells identified in V.C.4.a in accordance with the plans and specifications presented in Attachment P.
- d. The Director must approve the addition or removal of all monitoring wells prior to installation or abandonment.
  - 1. All wells deleted from the monitoring program shall be plugged and abandoned in accordance with Attachment Q. Well plugging methods and abandonment certification shall be submitted to the Director within thirty (30) days from the date the wells are removed from the monitoring program.
  - 2. All monitoring wells added to the existing groundwater monitoring system described in V.C.4.a must be constructed in accordance with the requirements of EPA's RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD) and approved by the Department (Attachment J, Appendix 5).
- e. All observation wells installed to evaluate the effectiveness of the groundwater extraction system shall be maintained and operated to ensure their continued function.

V.C.5. Groundwater Protection Standard

Although the Groundwater Protection Standard (GPS) for some constituents has been exceeded at point of compliance wells, WPI shall continue to monitor the groundwater to determine whether regulated units are in compliance with the GPS under 40 CFR §264.92 for the remaining constituents. The GPS is based in part upon upgradient concentrations from the facility's initial background monitoring, EPA Safe Drinking Water Act Maximum Contaminant Levels (MCLs), and Alternate Concentration Limits (ACLs), which are Health-based standards approved by the Department (Attachment N).

- a. The hazardous constituents and their concentration limits (based upon background, SWDA MCLs or ACLs) listed in Attachment N comprise the GPS; and
- b. WPI shall monitor all wells as described in V.C.2. for all parameters and constituents specified in Attachment K.

V.C.6. Compliance Period

The compliance period, during which the groundwater protection standard applies, is equal to twenty four (24) years from the date of initial issuance of the Order containing the Post-closure Plan (September 1994). If WPI is conducting corrective action at the end of the compliance period specified, then the compliance period shall be automatically extended until WPI demonstrates that the groundwater protection standard has not been exceeded in any point of compliance well for three (3) consecutive years.

V.C.7. Sampling and Analysis Procedures

WPI shall use the following procedures when obtaining and analyzing samples from the groundwater monitoring wells described in Condition V.C.2 or in accordance with alternate procedures approved by the Director prior to usage:

- a. Samples shall be collected using the techniques described in the Sampling and Analysis Plan (Attachment J);
- b. Samples shall be preserved, packed, and shipped or hand-delivered off-site for analysis in accordance with the procedures specified in Attachment J;
- c. Samples shall be analyzed in accordance with specifications in Attachments K and L;
- d. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Attachment J;
- e. WPI must determine the concentration of hazardous constituents and parameters listed in Attachment K in the groundwater at wells specified in Condition V.C.1 during the compliance period specified in Condition V.C.6;
- f. WPI must analyze samples from pumping well P-4 (Closed Surface Impoundment) at the downgradient point of compliance, for all constituents contained in Attachment L (Appendix IX to 40 CFR Part 264) at least annually during the compliance period.

V.C.8. Elevation of the Groundwater Surface

- a. WPI shall determine the groundwater surface elevation and depth to bottom of the well at each monitoring well specified in Condition V.C.2 to 0.01 foot each time groundwater is sampled in accordance with procedures contained in Attachment J;
- b. WPI shall determine the groundwater surface elevation at each monitoring well specified in Condition V.C.1.a through e to the nearest 0.01 foot during each monitoring event. WPI shall enter that information into the facility's operating record and shall include the information in annual monitoring reports; and
- b. WPI shall report the surveyed elevation of any additional or replacement monitoring well(s) to 0.01 foot when installed with the as-built drawings. The total depth of wells and the elevation of the following shall be recorded: top of the casing, ground surface and/or apron elevation, and the protective casing.

V.C.9 Monitoring Program and Data Evaluation

WPI shall determine groundwater quality as follows:

- a. WPI shall collect, preserve, and analyze groundwater samples pursuant to Condition V.C.7;
- b. WPI shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually;
- c. WPI shall analyze samples from pumping well P-4 (Closed Surface impoundment) for all constituents contained in Appendix Attachment L (Appendix IX to 40 CFR Part 264) at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer;
  1. If WPI finds additional constituents present, WPI shall notify the Department within seven (7) days and may resample the affected wells within 30 days of the date the data is available from the laboratory and repeat the analysis for the additional Appendix IX constituent(s);
  2. If the second analysis confirms the presence of new constituents, WPI shall report the concentration of these constituents to the Director in writing within seven (7) days after the completion of the second analysis and add them to the monitoring list (Post-closure Plan Attachment K);
  3. If WPI chooses not to resample, then WPI shall add the constituents to the monitoring list; and
  4. If the constituent has been previously detected in the monitoring well, then WPI may choose not to resample. WPI shall report the concentration within seven (7) days after the completion of the analyses. The notification shall indicate whether an alternate source demonstration (Condition V.C.9.e) has been approved for that constituent in that well or if a demonstration is to be attempted.
- d. Background for Newly Detected Constituents  
If the second analysis (Condition V.C.9.c) confirms the presence of new constituents, if WPI chooses not to resample, or if the demonstration in V.C.9.e is not accepted, WPI shall establish the background values for each additional constituent listed in Attachment L (Appendix IX to 40 CFR Part 264) found in the groundwater. Background groundwater quality for a newly listed monitoring constituent shall be based on data from independent samples collected during semi-annual sampling of the upgradient monitoring well MW-2 for at least two years;
- e. WPI may elect to demonstrate that the source of the newly detected constituent is something other than the regulated units;

1. This demonstration shall prove to the satisfaction of the Director that an alternate source caused the detection;
  2. The demonstration shall commence within a reasonable time following the notification in V.C.9.c.4, above and the results shall be submitted for review no later than 90 days from the original notification; and
  3. If the Director approves the results of the demonstration, the constituent shall not be added to the Corrective Action Monitoring list. However, the constituent shall remain on the Annual Appendix IX Constituent list and samples shall continue to be collected and analyzed as specified.
- f. The Director shall establish GPSs and amend Attachment N for newly detected constituents for each additional Appendix IX constituent confirmed in accordance with Condition V.C.9.c.
1. The background value determined through Condition V.C.9.d will be utilized as the Groundwater Protection Standard under 40 CFR §264.92 if one of the following does not exist for that constituent;
    - i. EPA Safe Drinking Water Act Maximum Concentration Levels (MCLs) or
    - ii. Alternate Concentration Limits (ACLs) - the Department-approved health-based standard.
  2. If the background concentration in the upgradient well exceeds the largest of the two items listed above, the calculated upgradient background will become the GPS for that constituent.

V.C.10. Comparison to Background Concentrations

For each new hazardous constituent identified, WPI may determine whether there is, or continues to be, a statistically significant exceedance of background concentrations for any parameter or chemical constituent each time the concentration of hazardous constituents is monitored in groundwater. In determining whether such an exceedance has occurred, WPI shall compare the groundwater quality at each monitoring well specified in Condition V.C.2, to the background concentration for that constituent, in accordance with the procedures specified in Attachment O.

For each hazardous constituent identified in Attachment K, WPI may elect to conduct an empirical comparison to the background concentration in lieu of statistical evaluation for any parameter or chemical constituent each time the concentration of hazardous constituents is monitored in groundwater to determine whether there is an exceedance or continues to be an exceedance of background concentrations.

V.C.11 Comparison to Groundwater Protection Standards

For each new hazardous constituent identified in Attachment K, WPI may determine if there is, or continues to be, statistically significant exceedances of GPSs each time the concentration of hazardous constituents is monitored in groundwater at the point of compliance; pursuant to Condition V.C.2., above. To make that determination, WPI may compare the groundwater quality at each monitoring well specified in Condition V.C.2., to the GPS for that constituent (Attachment N ), in accordance with the procedures specified in Attachment O.

For each hazardous constituent identified in Attachment K, WPI may elect to conduct an empirical comparison to the GPS in lieu of statistical evaluation for any parameter or chemical constituent each time the concentration of hazardous constituents is monitored in groundwater to determine whether there is an exceedance or continues to be an exceedance of GPS.

V.C.12. Statistical Analyses

If WPI elects to perform a statistical evaluation, WPI shall conduct the statistical evaluation within 30 days from the date the analytical results are available from the laboratory performing the analyses. WPI shall conduct all statistical procedures as specified in Attachment O or in accordance with an alternate procedure approved by the Director prior to usage and report the results to the Director.

- a. If the results of the statistical evaluation indicate that the GPS for any constituent has been exceeded in any point of compliance well which has already been reported, this information shall be included in the annual report; and
- b. If the results of the statistical evaluation indicate that the GPS for a constituent has been exceeded in any point of compliance well which has not been reported previously, WPI shall notify the Director in accordance with Condition V.D and propose appropriate modifications to the Corrective Action Program being implemented.

V.C.13 Evaluation of Groundwater Contaminant Plume Location

The results of the comparison of monitoring data from the compliance monitoring well(s) shall be used to determine if the groundwater contaminant plume has migrated vertically or horizontally. If newly detected constituents are detected at statistically significant levels above background in the compliance monitoring well(s) specified in Condition V.C.1.a, WPI shall take appropriate measures to further define the extent of groundwater contamination.

- a. WPI may make a demonstration that the background concentration was exceeded due to sources other than a regulated unit, errors in sampling, analysis, evaluation, or natural variation in the groundwater;
- b. WPI must notify the Director in writing, within seven (7) days, that a demonstration will be made;

- c. WPI must submit a report to the Director within 90 days that demonstrates that a source other than a regulated unit caused the background to be exceeded or that the apparent non-compliance was a result of an error in sampling, analysis, or evaluation;
- d. WPI must submit to the Director within 90 days a request for a modification to this plan to make any appropriate changes in the Corrective Action Monitoring Program at the Facility (Condition V.F);
- e. If the demonstration above is not attempted or is not accepted by the Director, WPI shall submit to the Director a plan to sample existing wells and/or install additional monitoring wells to define the vertical and horizontal extent of the constituent in the groundwater downgradient of the unit. This plan shall be submitted within thirty (30) days of the notification required above;
- f. Unless specific approval is granted in advance by the Director, all monitoring wells installed in accordance with the Condition above shall be sampled in accordance with Condition V.C.1 at least semiannually following installation and pending any appropriate modification to the Monitoring Program;
- g. Appropriate modifications to the Corrective Action Monitoring Program shall be proposed following the installation of any additional wells and/or as required to meet the performance standards of the monitoring program; and
- h. The results of the statistical evaluation and/or comparison shall be included in the Annual Monitoring Report (Condition V.D).

V.C.14 Background Exceedances at POC wells

If a previous statistical evaluation and/or data comparison has indicated that the difference in concentration is significant for a constituent in a sample from a point of compliance well and the established background concentration, that information shall be included in the notification required by Condition V.C.13.

- a. If the contaminant concentration is below the GPS (Attachment N), no further action beyond the notifications in Condition V.D.2 is required in response to the exceedance; and
- b. If the evaluation of the data from compliance monitoring well(s) also indicates a significant difference, Condition V.C.13 is applicable.

V.D REPORTING AND RECORDKEEPING

WPI shall enter all monitoring and analytical data obtained pursuant to Condition V.C in the Operating Record. WPI shall enter all notifications and reports required by this Plan and 9 VAC 20-60 *et seq* into the Operating Record.

Information concerning the maintenance and operation of the remedial system shall also be entered into the Operating Record.

V.D.1. Monitoring Data

WPI shall submit the analytical results required by this Plan at least annually, or whenever there is a significant change in groundwater flow rate or direction, or evidence of increased contamination for one or more of the monitoring constituents.

V.D.2. Background Exceedances

All background exceedances shall be reported in the Annual Monitoring Report. If a previous statistical evaluation and/or data comparison has determined that the constituent has exceeded background concentrations at the well, this information shall also be included. If the constituent has not exceeded background concentrations at the well previously, WPI shall follow the notification procedures contained in Condition V.C. Copies of the notification shall be included in the Annual Monitoring Report.

V.D.3. Exceedances of Groundwater Protection Standards

Copies of all notifications concerning GPS exceedances shall be contained in the Annual Monitoring Report. Notifications of GPS exceedances shall be submitted as described below:

- a. Pursuant to Condition V.C.14.a, if WPI determines there is evidence of increased contamination above the concentration limits specified in Attachment N and that exceedance has been reported to the Director in the previous Annual Monitoring Report for that monitoring well at the point of compliance, WPI is not required to submit separate notification; and
- b. Pursuant to Condition V.C.14.b, if WPI determines there is evidence of increased contamination above the concentration limits specified in Attachment N and that exceedance has not been reported to the Director in the previous Annual Monitoring Report for that monitoring well at the point of compliance, WPI is required to submit separate notification. The notification of the exceedance shall be submitted in writing to the Director within seven (7) days of determination of the exceedance.

V.D.4. Maintenance and Operation of Remedial Systems

- a. Actions taken for maintenance and repair of the remedial system shall be recorded in the Facility Operating Record and included in the Annual Monitoring Report; and
- b. The Department shall be notified in writing when the remedial system is taken off-line for equipment repair, replacement, or upgrade and the anticipated or actual duration is greater than 30 days. Periods less than 30 days shall be noted in the Operating Record and in the Annual Monitoring Report.

V.D.5. Annual Appendix IX Data

WPI shall report the data from the specified wells for all constituents contained in Attachment L (Appendix IX to 40 CFR Part 264) in the Annual Monitoring Report.

V.D.6. Contents of Remedial Measures Report

At least semi-annually, the effectiveness of the remedial measures shall be evaluated (40 CFR §264.100(g)) and the results submitted in the Annual Monitoring Report. The evaluation shall contain adequate information to demonstrate that the remedial measures are addressing the groundwater contamination at the units and progress is being made toward the remediation objectives.

V.D.7. Contents of Annual Monitoring Report

WPI shall submit a report every twelve months containing the results of the monitoring activities for the monitoring period. The report shall be submitted no later than March 1 of each year. The following items shall be contained in the Annual Monitoring Report:

- a. copies of all laboratory certificates from the monitoring period;
- b. potentiometric surface maps developed for each monitoring event in the monitoring period;
- c. evaluation of groundwater flow directions and gradients;
- d. results of groundwater analytical data comparisons and/or statistical analyses;
- e. copies of field logs, calculations, etc.;
- f. relevant operation and maintenance data for the remedial system; and
- g. copies of all notifications and reports required by this plan and 9 VAC 20-60-10 et seq.

V.E ASSURANCE OF COMPLIANCE

WPI shall demonstrate to the Director that groundwater monitoring and corrective action measures necessary to achieve compliance with the Groundwater Protection Standard under 40 CFR §264.92 are taken during the term of this plan by submitting all required reports, documentation, and notifications.

V.F REQUESTS FOR POST-CLOSURE PLAN MODIFICATION

V.F.1. In addition to plan modifications specified in 40 CFR §264.100(h) and elsewhere in this Plan, modifications during implementation of corrective measures at the point of compliance for the regulated units shall be required if WPI or the Director has made any of the following determination:



- a. A GPS has been exceeded for a constituent for which the corrective measure contained in the Plan will not achieve the remedial goals and an alternate remedial measure is required to meet the requirements of 40 CFR §264.100;
- b. The corrective measures contained in this Plan are no longer effective in remediating groundwater at the point of compliance and a GPS is still being exceeded. A modification incorporating a different remedial measure is required;
- c. The groundwater monitoring system is not capable of evaluating the effectiveness of the remedial measures or evaluating compliance with the GPSs. The necessary changes to the monitoring system require a modification; and
- d. Significant changes must be made to the remedial measures contained in this plan to protect human health and the environment.

V.F.2. If WPI or the Director determines that a modification is required, WPI must submit within 90 days a request for a modification to this Plan to make any appropriate changes in accordance with the procedures contained in 40 CFR §264.118(d)

## MODULE VI

### FACILITY SITE WDE CORRECTIVE ACTION

#### VI.A CORRECTIVE ACTION FOR CONTINUING RELEASES;

##### PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

VI.A.1. Pursuant to Section 3004(u) of RCRA, 42 USC §6924(u), and regulations codified at 40 CFR §264.101, WPI shall institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such a unit.

VI.A.2. Pursuant to Section 3004(v) of RCRA, 42 USC §6924(v), and 40 CFR §264.101(c), the Department may require that corrective action at a facility be taken beyond the facility boundary where necessary to protect human health or the environment, unless WPI demonstrates to the satisfaction of the Department that, despite WPI's best efforts, WPI was unable to obtain the necessary permission to undertake such action.

VI.A.3. Section 3005(c)(3) of RCRA, 42 USC § 6925(c)(3), and 40 CFR § 270.32(b) provides that each permit and by extension this Post-closure Plan shall contain such terms and conditions as the Director determines necessary to protect human health and the environment. If the Director determines, subsequent to the issuance of this Post-closure Plan, that additional Post-closure Plan conditions are necessary to protect human health or the environment, this Post-closure Plan will be modified in accordance with the applicable provisions of 40 CFR §264.270.32.

#### VI.B EMERGENCY RESPONSE; RELEASE REPORTING

##### Emergencies

VI.B.1. If, at any time during the term of this Post-closure Plan, WPI discovers that a release of hazardous waste or hazardous constituents at or from the facility is presenting or may present an imminent and substantial endangerment to human health or the environment WPI shall:

- a. Notify the Department as soon as practicable of the source, nature, location, and amount of such release and the actions taken and/or to be taken (to the extent known) to address such release. Such notification shall be confirmed in writing within (3) calendar days of discovery of such release; and
- b. Unless otherwise directed by the Department, immediately take such actions as are necessary and appropriate to address such release.

VI.B.2. If at any time during the term of this Post-closure Plan, WPI discovers a release of hazardous waste or hazardous constituents at or from the facility which:

- a. Is not being addressed by corrective measures at the time of such discovery; or

- b. Is not being addressed pursuant to Post-closure Plan Condition VIII.C.I. WPI shall notify the Department, in writing, of the nature, source, extent, location, and approximate amount within seven (7) calendar days of such release.

VI.B.3. Nothing in this Post-closure Plan shall relieve WPI of any obligation it may have under any law, including, but not limited to, Section 103 of CERCLA, 42 U.S.C. § 9603, to report releases of hazardous waste, hazardous constituents or hazardous substances to, at, or from the facility.

VI.C. SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT  
VI.C.1. Existing SWMUs

WPI submitted a SWMU Identification Letter on March 17, 1986 identifying 5 Solid Waste Management Units at the facility. This notification was revised on May 20, 1998 to include a sixth unit. A RCRA Facility Assessment (RFA) has not been prepared for the facility by the Environmental Protection Agency. The revised notification which includes a map is included as Post-closure Plan Attachment R.

VI.C.2. WPI shall notify the Department in writing of the discovery of any SWMU at the facility, identified after the date of issuance of this Post-closure Plan, no later than 30 calendar days after the date of discovery. The notification shall include, but not be limited to, the following known information:

- a. A description of the SWMU's type, function, dates of operation, location (including a map), design criteria, dimension, materials of construction, capacity, ancillary systems (e.g., piping), release controls, alterations made to the unit, engineering drawings, and all closure and post-closure information available, particularly whether wastes were left in place;
- b. A description of the composition and quantities of solid wastes processed by the units with emphasis on hazardous wastes and hazardous constituents; and
- c. A description of any release (or suspected release) of hazardous waste or hazardous constituents originating from the unit. Include information on the date of release, type of hazardous waste or hazardous constituents released, quantity released, nature of the release, extent of release migration, and cause of release (e.g., overflow, broken pipe, tank leak, etc.). Also, provide any available data which would quantify the nature and extent of environmental contamination, including the results of soil and/or groundwater sampling and analysis efforts. Likewise, submit any existing monitoring information that indicates releases of hazardous waste or hazardous constituents have or have not occurred or are not occurring. WPI may refer to information regarding releases previously submitted to the Department under Post-closure Plan Condition VIII.C.

- VI.C.3.        Upon completion of closure of any SWMU, WPI shall maintain in the facility operating record a record of the closure measures taken.

POST-CLOSURE PLAN  
LIST OF ATTACHMENTS

ATTACHMENT A- FACILITY LOCATION MAP

ATTACHMENT B- TOPOGRAPHIC MAP

ATTACHMENT C- FACILITY MAP

ATTACHMENT D- LIST OF WASTES

ATTACHMENT E- POST-CLOSURE CARE

APPENDIX 1- APPROVED CLOSURE/POST-CLOSURE CARE PLAN

APPENDIX 2- CLOSURE CERTIFICATION

ATTACHMENT F- FACILITY CONTACT

ATTACHMENT G- SECURITY PROVISIONS

ATTACHMENT H- INSPECTION REQUIREMENTS

APPENDIX 1- EXAMPLE WEEKLY INSPECTION REPORT

APPENDIX 2- EXAMPLE MONTHLY INSPECTION REPORT

ATTACHMENT I- PERSONNEL AND TRAINING

APPENDIX 1- JOB DESCRIPTION SUMMARY

ATTACHMENT J- S&AP

APPENDIX 1- EXAMPLE GROUNDWATER LOG

APPENDIX 2- CALCULATIONS FOR PURGE VOLUME

APPENDIX 3- EXAMPLE CHAIN OF CUSTODY

APPENDIX 4- SAMPLE CONTAINERS AND PRESERVATIVES

APPENDIX 5- MONITORING WELL CONSTRUCTION DIAGRAM

ATTACHMENT K- GROUNDWATER MONITORING CONSTITUENT LIST

ATTACHMENT L- APPENDIX IX TO 40 CFR PART 264 CONSTITUENT LIST

ATTACHMENT M- INITIAL BACKGROUND MONITORING DATA

ATTACHMENT N- GROUNDWATER PROTECTION STANDARD

ATTACHMENT O - STATISTICAL PROCEDURES

ATTACHMENT P- BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

ATTACHMENT Q- WELL ABANDONMENT PROCEDURES

ATTACHMENT R- SWMU IDENTIFICATION LETTER FOR WOOD PRESERVERS INC

# ATTACHMENT K

## CORRECTIVE ACTION GROUNDWATER MONITORING CONSTITUENTS AND REQUIRED ANALYTICAL METHODS

<u>PARAMETERS</u>	<u>SW-846, 3<sup>RD</sup> EDITION METHOD</u>	<u>PQL µg/l</u>
Acenaphthene	8270D	10
Acenaphthylene	8270D	10
Arsenic (total)*	6010B	1
Benzene	8260B	1
Benzo [a] anthracene	8270D	0.13
Benzo [b] fluoranthene	8270D	0.18
Benzo [k] fluoranthene	8270D	0.17
Benzo [ghi] perylene	8270D	0.76
Benzo [a] pyrene	8270D	0.2
p-Chloro-m-cresol	8270D	3.6
2-Chlorophenol	8270D	3.1
Chromium (total)*	6010B	1
Chrysene	8270D	1.5
Copper (total)*	6010B	1
m-Cresol/p-Cresol	8270D	10
o-Cresol	8270D	10
Dibenz (a,h) anthracene	8270D	0.3
Dibenzofuran	8270D	5
Diphenylamine (Carbazole)	8270D	10
2, 4-Dimethylphenol	8270D	6.3
2, 4-Dinitrophenol	8270D	50
Ethylbenzene	8260B	1
Fluoranthene	8270D	2.1
2-Methylnaphthalene	8270D	5
Indeno (1, 2, 3-cd) pyrene	8270D	0.43
Naphthalene*	8270D	1
Pentachlorophenol	8270D	1

## ATTACHMENT K

### CORRECTIVE ACTION GROUNDWATER MONITORING CONSTITUENTS AND REQUIRED ANALYTICAL METHODS

<u>PARAMETERS</u>	<u>SW-846, 3<sup>RD</sup> EDITION METHOD</u>	<u>PQL µg/l</u>
Phenol	8270D	50
Styrene	8260B	1
2, 3, 4, 6-Tetrachlorophenol	8270D	10
Toluene	8260B	1
2, 4, 6-Trichlorophenol	8270D	5
Total Xylenes	8260B	1

All methods are as described in *EPA's SW-846, Test Methods for Evaluating Solid Waste, Third Edition*.

\*Closed Spray Evaporation Pond – Constituents monitored annually only.

# ATTACHMENT L

## APPENDIX IX TO 40 CFR PART 264 GROUNDWATER MONITORING CONSTITUENTS AND REQUIRED ANALYTICAL METHODS

<u>PARAMETERS</u>	<u>SW-846, 3<sup>RD</sup> EDITION METHOD</u>	<u>PQL µg/l</u>
Acenaphthene	8270D	10
Acenaphthylene	8270D	10
Arsenic (total)	6010B	1
Benzene	8260B	1
Benzo [a] anthracene	8270D	0.13
Benzo [b] fluoranthene	8270D	0.18
Benzo [k] fluoranthene	8270D	0.17
Benzo [ghi] perylene	8270D	0.76
Benzo [a] pyrene	8270D	0.2
p-Chloro-m-cresol	8270D	3.6
2-Chlorophenol	8270D	3.1
Chromium (total)	6010B	1
Chrysene	8270D	1.5
Copper (total)	6010B	1
m-Cresol/p-Cresol	8270D	10
o-Cresol	8270D	10
Dibenz (a,h) anthracene	8270D	0.3
Dibenzofuran	8270D	5
Diphenylamine (Carbazole)	8270D	10
2, 4-Dimethylphenol	8270D	6.3
2, 4-Dinitrophenol	8270D	50
Ethylbenzene	8260B	1
Fluoranthene	8270D	2.1
2-Methylnaphthalene	8270D	5
Indeno (1, 2, 3-cd) pyrene	8270D	0.43
Naphthalene	8270D	1
Pentachlorophenol	8270D	1



## ATTACHMENT L

### APPENDIX IX TO 40 CFR PART 264 GROUNDWATER MONITORING CONSTITUENTS AND REQUIRED ANALYTICAL METHODS

<u>PARAMETERS</u>	<u>SW-846, 3<sup>RD</sup> EDITION METHOD</u>	<u>PQL µg/l</u>
Phenol	8270D	50
Styrene	8260B	1
2, 3, 4, 6-Tetrachlorophenol	8270D	10
Toluene	8260B	1
2, 4, 6-Trichlorophenol	8270D	5
Total Xylenes	8260B	1

All methods are as described in *EPA's SW-846, Test Methods for Evaluating Solid Waste, Third Edition*.

## ATTACHMENT N

### MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUNDWATER PROTECTION

<u>PARAMETERS</u>	<u>MAXIMUM CONCENTRATION</u> <u>µg/l</u>
Acenaphthene	939
Acenaphthylene	10
Arsenic (total)	10
Benzene	5
Benzo [a] anthracene	10
Benzo [b] fluoranthene	10
Benzo [k] fluoranthene	10
Benzo [ghi] perylene	10
Benzo [a] pyrene	0.2
p-Chloro-m-cresol	10
2-Chlorophenol	78.25
Chromium (total)	100
Chrysene	9.17
Copper (total)	1,300
m-Cresol/p-Cresol	782.5
o-Cresol	78.25
Dibenz (a,h) anthracene	10
Dibenzofuran	8.94
Diphenylamine (Carbazole)	10
2, 4-Dimethylphenol	313
2, 4-Dinitrophenol	31.3
Ethylbenzene	700
Fluoranthene	626
2-Methylnaphthalene	8.93
Indeno (1, 2, 3-cd) pyrene	10
Naphthalene	2.4
Pentachlorophenol	1

## ATTACHMENT N

### MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUNDWATER PROTECTION

<u>PARAMETERS</u>	<u>MAXIMUM CONCENTRATION</u>
	<u>µg/l</u>
Phenol	9,370
Styrene	100
2, 3, 4, 6-Tetrachlorophenol	469.5
Toluene	1000
2, 4, 6-Trichlorophenol	6.08
Total Xylenes	10,000

All methods are as described in *EPA's SW-846, Test Methods for Evaluating Solid Waste, Third Edition*.



MITSAK  
&  
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February 18, 2005

Ms. Emily McGahee  
Commonwealth of Virginia  
Department of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060

RECEIVED

FEB 22 2005

PRO

Subject: Wood Preservers, Inc.-Warsaw, Virginia  
VPDES Number VA0083127  
Permit Renewal  
Submittal of RCRA Facility Investigation (RFI) Report Information

Dear Ms. McGahee:

As a follow-up to our meeting on February 16, 2005, attached please find information copied from RFI Report which was submitted to VDEQ in 2004. I have included information of the investigation of soil in the treated wood storage area and groundwater quality data for the two monitoring wells in the western side of the facility. I would also like to confirm that monitoring well M-11, that is located near the office, is sampled as a part of the Semi-Annual Groundwater Monitoring Program performed in accordance the Enforcement Order for the closed surface impoundments.

We are confident that the existing monitoring of groundwater conducted for both programs provides adequate data on the quality of groundwater at the facility. Should you wish to consider additional sampling, we would appreciate the opportunity to discuss with you the findings of the RFI and the data from the Semi-Annual Program.

Sincerely,

John C. Mitsak, P.E.  
President

cc: Morgan Wright, Wood Preservers, Inc.

692 #1220

**RECEIVED**

**JUN 24 2003**

**OFFICE OF WASTE  
PERMITTING**

**RCRA FACILITY INVESTIGATION  
REPORT  
WOOD PRESERVERS, INC.  
WARSAW, VIRGINIA  
EPA ID NO. VAD003113750**

**Prepared by:**

**J. MITSAK & ASSOCIATES, P.C.  
808 HATHERLEIGH ROAD  
BALTIMORE, MARYLAND 21212**

**Prepared for:**

**WOOD PRESERVERS, INC.  
P.O. BOX 158  
15939 HISTORYLAND HIGHWAY  
WARSAW, VIRGINIA 22572**

**JUNE 2003**

### 3.2 Soil Quality Investigation

The purpose of the soil quality investigation was to fully characterize the SWMUs and AOCs targeted for investigation. As such, the soil sampling program for the Facility focused on surface (zero to two feet in depth) and subsurface soils in these targeted areas.

The following soil sampling program was implemented at the Facility:

- SWMU 3 – Former Spray Lagoon: Two soil borings.
- SWMU 10 – Former Tank Farm: Six soil borings.
- SWMU 11 – Hazardous Waste Drum Accumulation Area: One soil boring.
- SWMU 12 – Wood Fired Boiler (ash accumulation area): One soil boring.
- SWMU 13 – Boiler Ash Staging Pile: Two soil borings.
- AOC 1 – Former Drip Pad: Six soil borings.
- AOC 2 – Old Treating Plant Area: Seven soil borings.
- AOC 3 – Outdoor Treated Wood Storage Areas: Six soil borings.

General soil sampling locations were identified in the RFI Work Plan (J. Mitsak & Associates, 2002b). These locations were finalized based on a field review. Soil boring locations are shown on Figure 3-1. Soil borings were installed using direct-push sampling equipment. Continuous soil samples were collected in new acetate liners from ground surface to a termination depth determined based on field observations and the nature of potential releases from the unit under investigation. Samples were described in the field by a geologist, and field logs, including soil descriptions and other pertinent information such as environmental quality observations, were prepared.

Surface soil samples were collected for laboratory analysis at each boring location. Field observations (visual/odor), and location and depth considerations were used in the selection of subsurface soil samples for laboratory analysis. Selected samples were containerized in the laboratory-supplied jars, documented on laboratory-provided chain-of-custody forms, placed on ice, and transported to the laboratory for analysis of VOCs (U.S. EPA Method 8260B/5035); SVOCs (U.S. EPA Method 8270); and copper, total chromium, arsenic, and lead (6000- and 7000-series U.S. EPA Methods). In the boiler ash areas of investigation, the inorganics analysis was expanded to the full target analyte list (TAL) suite of constituents.

Following completion of soil sampling, boreholes were backfilled with bentonite chips. Residual soil samples not used for laboratory analysis purposes were containerized for appropriate disposal. All soil sampling locations were flagged, and locations and ground surface elevations were surveyed.

### 3.3 Groundwater Quality Characterization

To supplement the existing shallow groundwater monitoring network, four additional monitoring wells were installed at the Facility. One well was installed in a location presumed to be upgradient of the entire Facility; one well was installed downgradient of the current treating building (SWMUs 5, 6, and 7); one well was installed in the boiler ash staging area (SWMU 13); and one well was installed in the largest

treated wood storage area at the facility (AOC 3). The previously installed and newly installed monitoring well locations are shown on Figure 3-2.

Preliminary soil borings were installed at each well location using direct-push sampling equipment, for the purpose of describing the physical soil conditions and identifying the approximate depth of the water table. Continuous soil samples were collected in new acetate liners from ground surface to a termination depth determined in the field. The soil samples were described in the field by a geologist; no soil samples were collected for laboratory analysis from these locations.

Following completion of the soil borings, monitoring wells were installed using hollow-stem auger equipment. Boreholes were advanced to the termination depth (selected based on the soil boring program). To prevent the effects of heaving sand noted during prior drilling events, an expendable wooden plug was set in the auger tip. Wells were set using 2-inch threaded flush-joint PVC screen (0.010-inch slot) and riser. A sand filter pack was installed to a level approximately two feet above the top of the screen, and a two-foot bentonite seal was placed on top of the filter pack. The remaining annular space was filled with bentonite, and a locking steel protector pipe was concreted into place at the ground surface. A concrete well pad was constructed around each protector pipe to prevent the infiltration of surface water. The wells were developed using a bottom-filling bailer. The well locations and top-of-casing elevations were surveyed and referenced to the existing facility drawing information.

The RFI groundwater quality evaluation included providing a current update/evaluation of shallow groundwater quality for monitoring wells not included in the current Semi-Annual Groundwater Monitoring program. These wells are identified on Figure 3-2. These wells were re-developed in October 2001, and sampled in December 2001 in conjunction with the second period 2001 semi-annual groundwater sampling round. The four monitoring wells installed for the RFI were sampled in December 2002, in conjunction with the second period 2002 semi-annual groundwater sampling round.

Prior to sampling, the depth to groundwater in each of the monitoring wells was measured to determine sample purging volumes, and the total volume of water present in each well was calculated. The wells were also examined for the presence of light- or dense-phase free product at this time; no free product was noted during the RFI sampling activities (or any of the previous sampling activities).

Wells were purged and sampled using bottom-filling bailers. Care was taken during sampling to minimize the amount of turbidity present in the samples. Samples were collected and handled in accordance with the QAPP/SAP. Filled sample containers were placed on ice in insulated coolers pending completion of each day's sampling activities. Samples were packaged for delivery under chain-of-custody to the laboratory. Groundwater samples were analyzed for VOCs by U.S. EPA Method 8260B; SVOCs by U.S. EPA Method 8270; and copper, total chromium, and arsenic by U.S. EPA Method 6000/7000. Samples collected for inorganics analysis were field-filtered to provide dissolved concentrations; unfiltered samples were also analyzed to provide total concentrations. Total suspended solids (TSS) concentrations were also determined for each of the samples.

Purge water was containerized in drums and placed in the Facility's wastewater treatment system for management.

### **3.4 Drainage Ditch Characterization**

Three surface soil samples were collected from the drainage ditch adjacent to the former treating area, at the locations shown on Figure 3-1. Prior to sampling, the drainage ditch was examined for indications of possible facility impacts, including odors, oil sheens, staining, and distressed vegetation. No indications of impacts were noted. Samples were obtained from the immediate bottom of the ditch using dedicated sampling equipment. Samples were submitted for analysis of VOCs by U.S. EPA Method 8260B/5035; SVOCs by U.S. EPA Method 8270; and copper, total chromium, and arsenic by U.S. EPA Methods 6000/7000.



Residential and Industrial RBCs. Naphthalene was not detected using SVOC Method 8270 in any samples collected from AOC 1-01 (at detection limits ranging from 0.5 mg/kg to 10 mg/kg).

SVOCs were detected in samples collected from Borings AOC 1-01 and AOC 1-02. Several SVOCs in the surface sample from Boring AOC 1-01 exceed Region III Residential and Industrial RBCs. Pentachlorophenol in the surface sample from Boring AOC 1-02 exceeds the Region III Residential and Industrial RBCs.

Arsenic, total chromium, copper, and lead were detected in samples collected from AOC 1. Generally, these concentrations decrease with depth. Arsenic concentrations exceed the Region III Residential RBCs in a number of the surface and 5-foot depth interval samples. Arsenic concentrations exceed Region III Industrial RBCs in the surface soil samples from Borings AOC 1-01 and AOC 1-02, and in the five-foot depth interval from Boring AOC 1-02. None of the other concentrations detected exceed the Region III Residential or Industrial RBCs.

- **AOC 2 – Old Treating Plant Area:** Naphthalene was noted in the VOC Method 8260 analysis in several of the surface soil and deeper samples from this AOC. With the exception of the concentration detected at Boring AOC 2-03 in the 21-foot depth interval, these concentrations are notably below the Region III Residential and Industrial RBCs. Naphthalene at a 21-foot depth in Boring AOC 2-03 (4400 mg/kg) exceeds the Region III Residential RBC. (It should be noted that the SVOC Method 8270 analysis detected naphthalene at a concentration of 0.8 mg/kg at this depth interval in Boring AOC 2-03.) Other VOCs were also detected in the 21-foot sample collected from Boring AOC 2-03. None of these other VOC concentrations detected exceed the Region III Residential or Industrial RBCs.

SVOCs were detected at various depth intervals in multiple soil borings in AOC 2. For surface soils, concentrations exceeding Region III Residential RBCs were noted in Borings AOC 2-04 and AOC 2-05. None of these concentrations exceed the Region III Industrial RBCs. SVOCs exceed Region III Residential and Industrial RBCs at depth in Borings AOC 2-03 and AOC 2-05.

Arsenic, total chromium, copper, and lead were detected in samples collected from the seven borings located within this AOC. With the exception of Boring AOC 2-02, concentrations generally decrease with depth in this area. The majority of arsenic concentrations detected exceed the Region III Residential RBC. Three of the arsenic concentrations exceed the Region III Industrial RBC (Borings AOC 2-02 at 21 feet, AOC 2-05 at 5 feet, and AOC 2-06 at 5 feet). The total chromium concentration for Boring AOC 2-02 at 21 feet also exceeded the Region III Residential RBC. No other inorganics detected exceed the Region III Residential or Industrial RBCs.

- **AOC 3 – Outdoor Treated Wood Storage Areas:** There were no VOCs detected in any of the AOC 3 samples collected.

SVOCs were detected in the surface soil sample collected at Boring AOC 3-03. Several of the SVOC constituents detected in this sample exceed Region III Residential RBCs, while benzo(a)pyrene (1.2

mg/kg) exceeds the Region III Industrial RBC. The constituent bis(2-ethylhexyl)phthalate was detected at a low level (0.7 mg/kg) in the 5-foot depth interval at Boring AOC 3-03. This constituent is a common sampling/laboratory artifact and is not related to wood preserving, and the detected concentration is notably below the Region III Residential RBC. No other SVOCs were detected in any of the AOC 3 samples collected.

Arsenic, total chromium, copper, and lead were detected in samples collected from the six borings located within this AOC. Concentrations generally decrease with depth. The majority of arsenic concentrations detected exceed the Region III Residential RBC. Two of the arsenic concentrations exceed the Region III Industrial RBC (Borings AOC 3-03 at 1 foot, and AOC 3-06 at 5 feet). No other inorganics detected exceed the Region III Residential or Industrial RBCs.

- **Former Treating Area Drainage Ditch:** There were no VOCs detected in any of the drainage ditch samples collected.

Several SVOCs were detected at locations SED-01 and SED-02. Benzo(b)fluoranthene concentrations exceed the Region III Residential RBC in these samples. No other constituent concentrations detected in the drainage ditch samples exceed the Region III Residential or Industrial RBCs.

Arsenic, total chromium, copper, and lead were detected in samples collected from the drainage ditch samples. Arsenic concentrations exceed the Region III Residential and Industrial RBCs. No other inorganics detected exceed the Region III Residential or Industrial RBCs.

## 5.2 Groundwater Quality

Groundwater quality data for the December 2001 and December 2002 RFI sampling events are summarized in Tables 5-2 and 5-3, respectively, and full copies of the laboratory reports are presented in Appendix C. Monitoring well groundwater quality results for both the December 2001 sampling event (incorporating shallow monitoring wells not included in the semi-annual groundwater monitoring program) and the December 2002 sampling event (incorporated the four newly installed RFI monitoring wells) are included in the Tables and Appendix. Data for the four pumping wells (located downgradient of the two closed RCRA units, SWMU 1 and SWMU 2) are not included. Tables 5-2 and 5-3 identify U.S. EPA Region III risk-based concentrations (RBCs) (U.S. EPA, 2003a) for initial screening purposes. These tables also identify the Initial Background Concentrations and Groundwater Protection Standards included in the 1998 VDEQ Post-Closure Care Enforcement Order for the facility.

Tables 5-2 and 5-3 show that organic constituents (VOCs and SVOCs) are detected at concentrations exceeding U.S. EPA Region III RBCs in two wells (M-5A and M-16) located immediately downgradient of the closed RCRA Surface Impoundment (SWMU 1) area. The results for M-5A are consistent with the historic groundwater monitoring results for this well, with naphthalene being the predominant organic constituent detected (5600 ug/L in December 2001 and 370 ug/L in December 2002). Benzene, ethylbenzene, 2-methylnaphthalene, pentachlorophenol, and dibenzofuran also exceeded their respective U.S. EPA Region III RBC in Well M-5A for one or both of the sampling rounds. Again, these results are

consistent with the historical groundwater monitoring results for this well. In December 2001, naphthalene was detected at 20 ug/L (RBC of 6.5 ug/L) in Well M-16; this was the only other organic constituent exceeding RBCs in the two sampling rounds. Well M-16 is not included in the routine groundwater monitoring program.

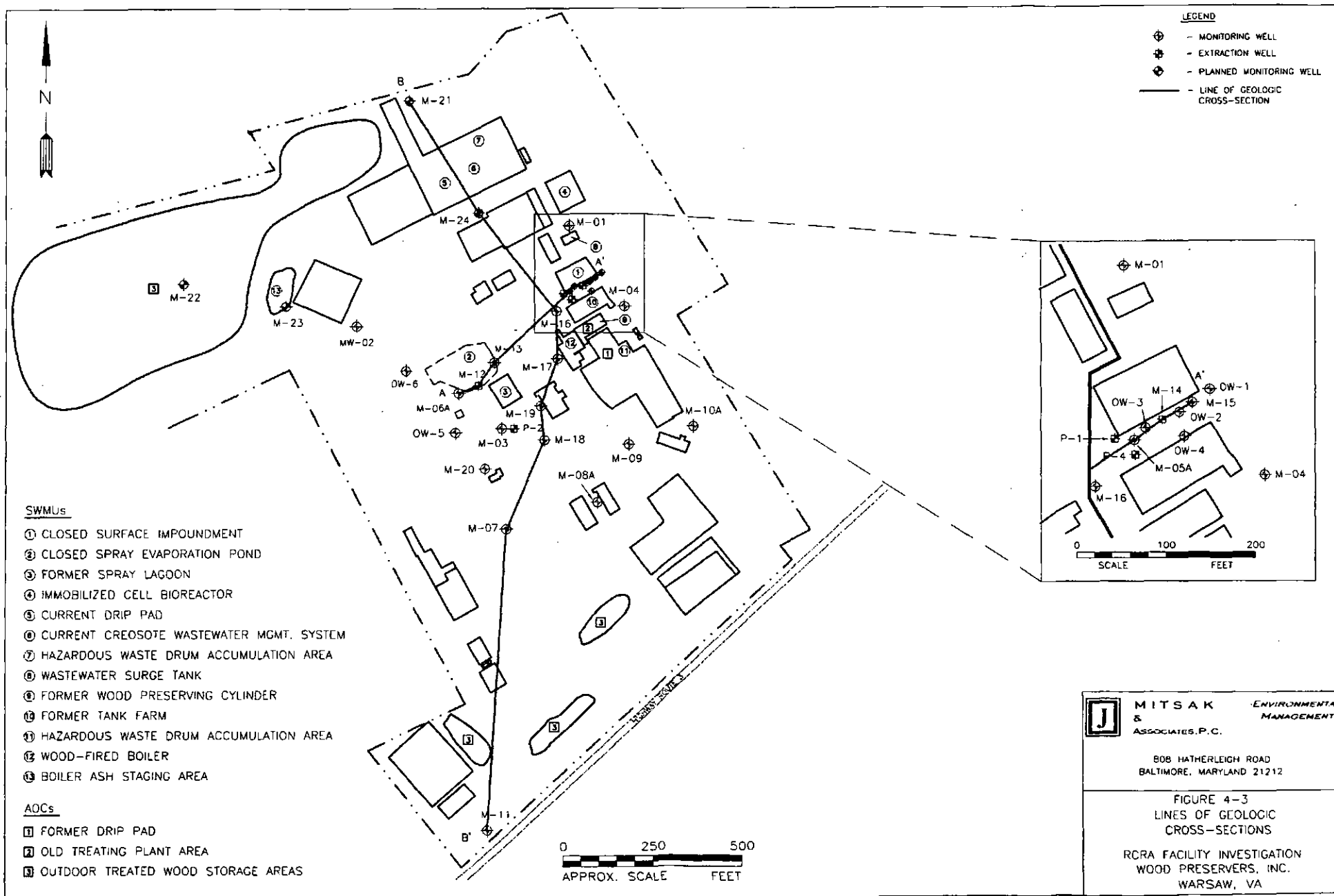
For inorganic constituents, total (unfiltered) arsenic was detected at concentrations exceeding U.S. EPA Region III RBCs in Wells M-16 and M-19 in the December 2001 sampling round. Dissolved (filtered) arsenic was not detected in either of these wells. Total barium and total chromium were detected in Well M-21 (Facility upgradient well) (2790 ug/L and 370 ug/L, respectively) in the December 2002 sampling round at concentrations exceeding the RBC. Dissolved barium and dissolved chromium were at much lower concentrations (60 ug/L and <10 ug/L, respectively), notably below the RBCs. No other inorganic constituents exceeded their respective RBCs in either of the two sampling rounds. The inorganic constituent results are consistent with the historical groundwater quality data in that dissolved (filtered) concentrations are notably lower than the corresponding total (unfiltered) concentrations. This suggests that the inorganic constituents detected are primarily associated with sample turbidity. In the case of the four newly installed monitoring wells (M-21 through M-24), total suspended solids (TSS) data indicates that these wells are highly turbid, compared with the previously installed monitoring wells at the Facility. This turbidity difference is attributed to the high number of purging/sampling events performed for the previously installed wells relative to the newly installed wells.

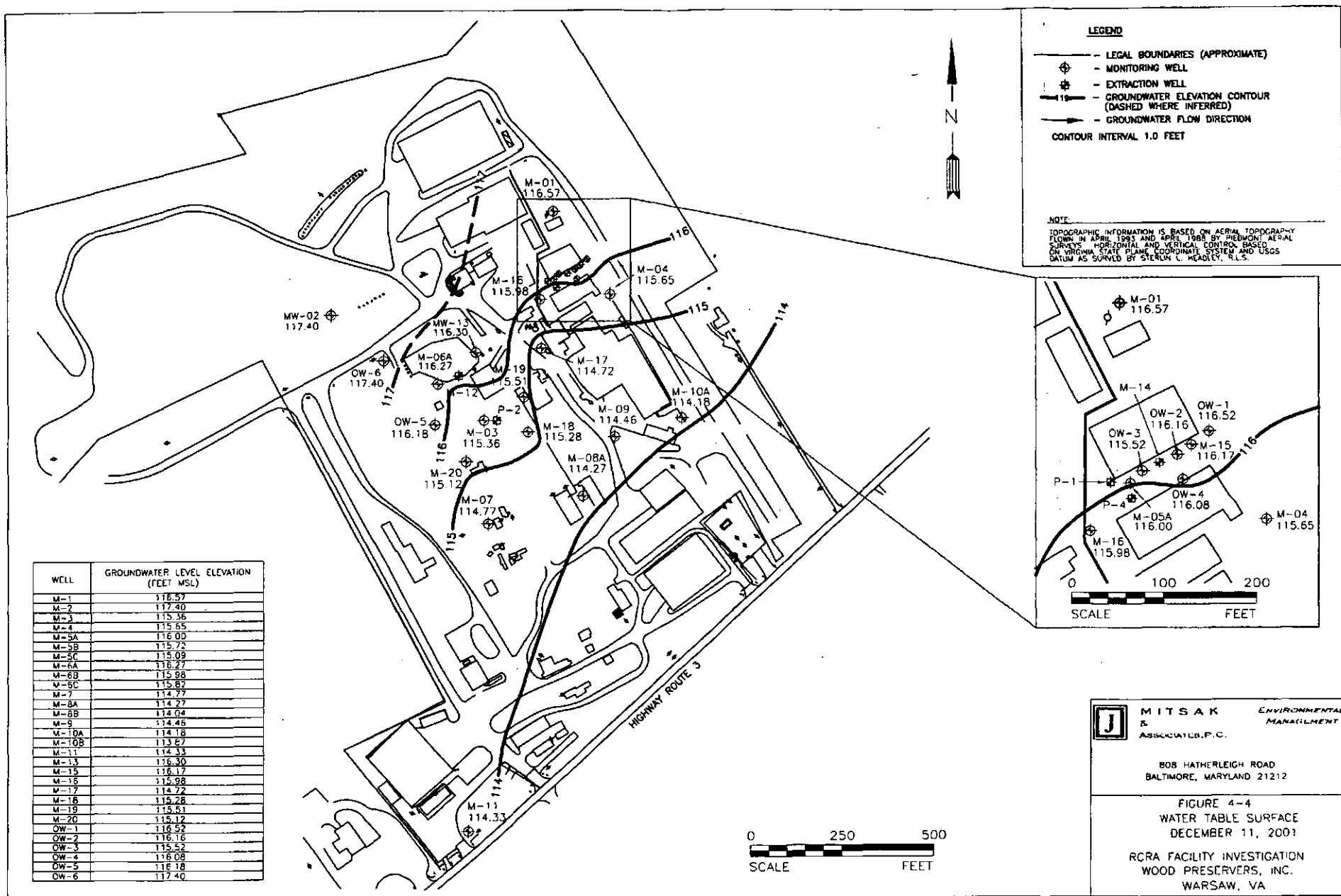
### 5.3 Summary of Environmental Quality Characterization

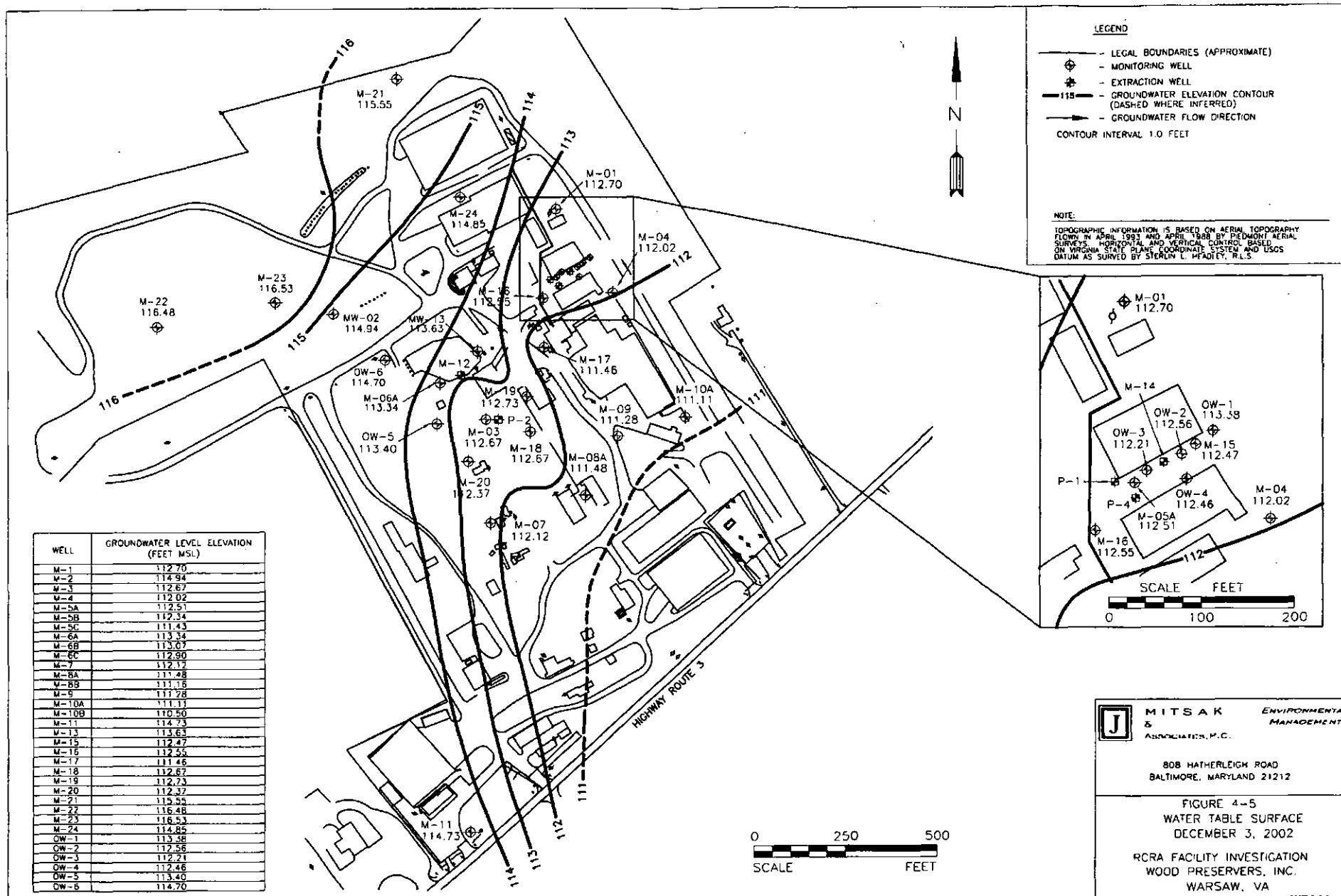
Exceedances of U.S. EPA Residential RBCs were noted in SWMU 3, SWMU 10, SWMU 12, SWMU 13, AOC 1, AOC 2, AOC 3, and the drainage ditch. Exceedances of U.S. EPA Industrial RBCs were noted in SWMU 3, SWMU 10, AOC 1, AOC 2, AOC 3, and the drainage ditch. Shallow soil exceedances of the RBCs were primarily related to arsenic concentrations. Deep soil exceedances are related to both inorganic and organic constituents, depending on sample location.

Elevated arsenic and chromium concentrations detected at depth in sample location AOC 2-02 appear to be related to the reported historical spill of CCA that occurred nearby. The (somewhat) elevated arsenic concentrations at depth in nearby locations SWMU 13-01 and SWMU 13-02 could also be related to this reported historical spill. Elevated organic constituents detected at depth at sample locations AOC 2-03 and AOC 2-05 appear to be related to groundwater migration from the vicinity of SWMU 1 rather than from releases in the immediate vicinity of these sampling locations. Shallow soil quality in these sampling locations is not suggestive of surface releases from this AOC.

The RFI groundwater quality results are consistent with the findings of the previous groundwater quality investigation activities, and the subsequent routine groundwater monitoring programs. Groundwater quality conditions have been very consistent at the Facility over time, with the Facility-associated groundwater quality effects occurring in the shallow groundwater in the immediate vicinity of the closed surface impoundment (SWMU 1). These groundwater quality effects are currently being controlled by the Facility's groundwater extraction/treatment activities. In the case of inorganic constituents, elevated detections appear to be primarily related to sample turbidity; dissolved constituent results (filtered samples) are notably lower than total constituent results (unfiltered samples), and are often non-detect.







**Table 5-1c**  
**Summary of Soil Quality Results**  
**Inorganic Constituents**  
**Wood Preservers, Inc.**  
**Warsaw, Virginia**

Sample ID	Units	U.S. EPA REGION III RBC RESIDENTIAL	U.S. EPA REGION III RBC INDUSTRIAL/COMMERCIAL	AOC 2-02 21.00 - 21.50 FT	AOC 2-03 1.00 - 1.50 FT	AOC 2-03 5.00 - 5.50 FT	AOC 2-03 21.00 - 21.50 FT	AOC 2-04 1.00 - 1.50 FT	AOC 2-04 5.00 - 5.50 FT	AOC 2-04 21.00 - 21.50 FT	AOC 2-05 1.00 - 1.50 FT	AOC 2-05 5.00 - 5.50 FT	AOC 2-05 21.00 - 21.50 FT	AOC 2-06 1.00 - 1.50 FT
TAL Metals				10/16/02	10/16/02	10/16/02	10/16/02	10/17/02	10/17/02	10/17/02	10/16/02	10/16/02	10/16/02	10/16/02
Aluminum	mg/kg	78200	2040000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.426	3.82	1600	2.2	1.3	<1.0	3	2	<1.0	2	11	<1.0	3.5
Barium	mg/kg	5480	143000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	78.2	2040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	235	6130	300	16	12	5.4	18	14	14	23	37	6.1	22
Cobalt	mg/kg	1560	20400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	3130	81800	490	51	34	46	52	41	23	57	160	27	51
Iron	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg			3.5	7.1	5.3	2.5	7.5	6.1	3	7.5	7	3.9	18
Magnesium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	11000	40900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	23.5	613	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	1560	40900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	391	10200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	548	14300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID	Units	U.S. EPA REGION III RBC RESIDENTIAL	U.S. EPA REGION III RBC INDUSTRIAL/COMMERCIAL	AOC 2-06 5.00 - 5.50 FT	AOC 2-06 21.00 - 21.50 FT	AOC 2-07 1.00 - 1.50 FT	AOC 2-07 5.00 - 5.50 FT	AOC 2-07 21.00 - 21.50 FT	AOC 3-01 1.00 - 1.50 FT	AOC 3-01 5.00 - 5.50 FT	AOC 3-01 18.00 - 18.50 FT	AOC 3-02 1.00 - 1.50 FT	AOC 3-02 5.00 - 5.50 FT	AOC 3-02 18.00 - 18.50 FT
TAL Metals				10/15/02	10/16/02	10/17/02	10/17/02	10/17/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02
Aluminum	mg/kg	78200	2040000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.426	3.82	6.3	1.2	1.1	1.1	<1.0	1.6	<1.0	<1.0	<1.0	1.3	<1.0
Barium	mg/kg	5480	143000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	78.2	2040	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	235	6130	35	83	12	14	3	5.7	14	5.7	15	18	3.3
Cobalt	mg/kg	1560	20400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	3130	81800	150	120	34	56	7.5	14	41	20	39	39	6.7
Iron	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg			11	3.3	5.2	5.5	3.8	5.9	6.4	3.4	5.9	5.2	1.8
Magnesium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	11000	40900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	23.5	613	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	1560	40900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	391	10200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	548	14300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Only detected constituents are shown on table

**Table 5-1c**  
**Summary of Soil Quality Results**  
**Inorganic Constituents**  
**Wood Preservers, Inc.**  
**Warsaw, Virginia**

Sample ID	Units	U.S EPA REGION III RBC RESIDENTIAL	U.S EPA REGION III RBC INDUSTRIAL/C OMMERICAL	AOC 3-03 1.00 - 1.50 FT 10/18/02	AOC 3-03 5.00 - 5.50 FT 10/18/02	AOC 3-03 18.00 - 18.50 FT 10/18/02	AOC 3-04 1.00 - 1.50 FT 10/17/02	AOC 3-04 5.00 - 5.50 FT 10/17/02	AOC 3-04 18.00 - 18.50 FT 10/17/02	AOC 3-05 1.00 - 1.50 FT 10/15/02	AOC 3-05 5.00 - 5.50 FT 10/15/02
<b>TAL Metals</b>											
Aluminum	mg/kg	78200	2040000	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.426	3.82	45	4.7	<1.0	3.8	2.1	1.9	1.4	2
Barium	mg/kg	5480	143000	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	78.2	2040	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	235	6130	50	15	6	32	14	2.5	13	12
Cobalt	mg/kg	1560	20400	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	3130	81800	64	40	13	180	68	22	31	42
Iron	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg			22	7.2	1.7	9.9	12	3.9	7	7.1
Magnesium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	11000	40900	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	23.5	613	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	1560	40900	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	391	10200	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg			NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	548	14300	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID	Units	U.S EPA REGION III RBC RESIDENTIAL	U.S EPA REGION III RBC INDUSTRIAL/C OMMERICAL	AOC 3-05 18.00 - 18.50 FT 10/15/02	AOC 3-06 1.00 - 1.50 FT 10/17/02	AOC 3-06 5.00 - 5.50 FT 10/17/02	AOC 3-06 17.50 - 18.00 FT 10/17/02	SED-01 SURFACE 10/18/02	SED-02 SURFACE 10/18/02	SED-03 SURFACE 10/18/02
<b>TAL Metals</b>										
Aluminum	mg/kg	78200	2040000	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.426	3.82	1.6	2.4	4.1	<1.0	25	13	4.7
Barium	mg/kg	5480	143000	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	78.2	2040	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/kg			NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	235	6130	2.3	17	21	1.4	56	27	20
Cobalt	mg/kg	1560	20400	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	3130	81800	21	51	73	5.3	83	51	44
Iron	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg			1.5	8	7.6	1.1	6.8	8.3	7.9
Magnesium	mg/kg			NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	11000	40900	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	23.5	613	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	1560	40900	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg			NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	391	10200	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg			NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	548	14300	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	23500	613000	NA	NA	NA	NA	NA	NA	NA

Note: Only detected constituents are shown on table



Table 5-2  
Summary of Groundwater Quality Results  
December 2001  
Wood Preservers, Inc.  
Warsaw, Virginia

Sample ID	Units	Initial Background	Groundwater Protection Standard	U.S. EPA Region III RBC	M-1	M-2	M-4	M-5A	M-6A	M-7
<b>VOLATILE ORGANIC COMPOUNDS</b>										
Benzene	ug/L	--	5	0.34	<1.0	<1.0	<1.0	25	<1.0	<1.0
Toluene	ug/L	--	1000	747	<1.0	<1.0	<1.0	50	<1.0	<1.0
Ethylbenzene	ug/L	--	700	1340	<1.0	<1.0	<1.0	64	<1.0	<1.0
Xylenes	ug/L	--	10000	210	<1.0	<3.0	<3.0	101	<3.0	<1.0
Styrene	ug/L	--	100	1620	<1.0	<1.0	<1.0	36	<1.0	<1.0
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>										
Acenaphthene	ug/L	2	939	365	<10	<10	<10	345	<10	<10
Naphthalene	ug/L	2.4	626	6.51	<10	<10	<10	5600	<10	<10
2-Methylnaphthalene	ug/L	--	44.7	122	<10	<10	<10	620	<10	<10
<b>TOTAL METALS</b>										
Arsenic	ug/L	10	50	0.0446	<10	<10	<10	<10	<10	<10
Barium	ug/L	--	--	2560	NA	40	110	20	40	NA
Chromium	ug/L	37.1	100	110	<10	<10	<10	<10	<10	10
Copper	ug/L	14	1300	1460	<10	20	10	<10	20	<10
Magnesium	ug/L	--	--	--	NA	3660	5350	1560	2710	NA
Manganese	ug/L	--	--	730	NA	20	70	190	200	NA
<b>DISSOLVED METALS</b>										
Arsenic	ug/L	10	50	0.0446	<10	<10	<10	<10	<10	<10
Barium	ug/L	--	--	2560	NA	40	110	20	30	NA
Chromium	ug/L	17	100	110	<10	<10	<10	<10	<10	<10
Copper	ug/L	--	1300	1460	<10	30	20	<10	30	<10
Magnesium	ug/L	--	--	--	NA	NA	NA	NA	NA	NA
Manganese	ug/L	--	--	730	NA	NA	NA	NA	NA	NA

Note: Only detected constituents are shown on table  
ug/L - micrograms per liter  
NA - compound not analyzed

Table 5-2  
Summary of Groundwater Quality Results  
December 2001  
Wood Preservers, Inc.  
Warsaw, Virginia

Sample ID	Units	Initial Background	Groundwater Protection Standard	U.S. EPA Region III RBC	M-8A	M-9	M-10A	M-11	M-13	M-15
<b>VOLATILE ORGANIC COMPOUNDS</b>										
Benzene	ug/L	--	5	0.34	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	ug/L	--	1000	747	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	ug/L	--	700	1340	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes	ug/L	--	10000	210	<3.0	<1.0	<1.0	<1.0	<1.0	<3.0
Styrene	ug/L	--	100	1620	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>										
Acenaphthene	ug/L	2	939	365	<10	<10	<10	<10	<10	<10
Naphthalene	ug/L	2.4	626	6.51	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	ug/L	--	44.7	122	<10	<10	<10	<10	<10	<10
<b>TOTAL METALS</b>										
Arsenic	ug/L	10	50	0.0446	<10	<10	<10	<10	<10	<10
Barium	ug/L	--	--	2560	30	NA	NA	NA	NA	30
Chromium	ug/L	37.1	100	110	<10	<10	<10	30	<10	<10
Copper	ug/L	14	1300	1460	20	<10	<10	20	<10	20
Magnesium	ug/L	--	--	--	570	NA	NA	NA	NA	890
Manganese	ug/L	--	--	730	30	NA	NA	NA	NA	10
<b>DISSOLVED METALS</b>										
Arsenic	ug/L	10	50	0.0446	<10	<10	<10	<10	<10	<10
Barium	ug/L	--	--	2560	<10	NA	NA	NA	NA	<10
Chromium	ug/L	17	100	110	<10	<10	<10	<10	<10	<10
Copper	ug/L	--	1300	1460	20	<10	<10	<10	<10	20
Magnesium	ug/L	--	--	--	NA	NA	NA	NA	NA	NA
Manganese	ug/L	--	--	730	NA	NA	NA	NA	NA	NA

Note: Only detected constituents are shown on table  
ug/L - micrograms per liter  
NA - compound not analyzed

Table 5-2  
Summary of Groundwater Quality Results  
December 2001  
Wood Preservers, Inc.  
Warsaw, Virginia

Sample ID	Units	Initial Background	Groundwater Protection Standard	U.S. EPA Region III RBC	M-16	M-17	M-18	M-19	M-20
<b>VOLATILE ORGANIC COMPOUNDS</b>									
Benzene	ug/L	--	5	0.34	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	ug/L	--	1000	747	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	ug/L	--	700	1340	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes	ug/L	--	10000	210	<1.0	<1.0	<1.0	<1.0	<3.0
Styrene	ug/L	--	100	1620	<1.0	<1.0	<1.0	<1.0	<1.0
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>									
Acenaphthene	ug/L	2	939	365	<10	<10	<10	<10	<10
Naphthalene	ug/L	2.4	626	6.51	20	<10	<10	<10	<10
2-Methylnaphthalene	ug/L	--	44.7	122	12	<10	<10	<10	<10
<b>TOTAL METALS</b>									
Arsenic	ug/L	10	50	0.0446	20	10	<10	10	<10
Barium	ug/L	--	--	2560	NA	NA	NA	NA	100
Chromium	ug/L	37.1	100	110	40	30	20	20	<10
Copper	ug/L	14	1300	1460	20	20	20	20	30
Magnesium	ug/L	--	--	--	NA	NA	NA	NA	3040
Manganese	ug/L	--	--	730	NA	NA	NA	NA	50
<b>DISSOLVED METALS</b>									
Arsenic	ug/L	10	50	0.0446	<10	<10	<10	<10	<10
Barium	ug/L	--	--	2560	NA	NA	NA	NA	20
Chromium	ug/L	17	100	110	<10	<10	<10	<10	<10
Copper	ug/L	--	1300	1460	<10	<10	<10	<10	20
Magnesium	ug/L	--	--	--	NA	NA	NA	NA	NA
Manganese	ug/L	--	--	730	NA	NA	NA	NA	NA

Note: Only detected constituents are shown on table  
ug/L - micrograms per liter  
NA - compound not analyzed

**Table 5-3**  
**Summary of Groundwater Quality Results**  
**December 2002**  
**Wood Preservers, Inc.**  
**Warsaw, Virginia**

Sample ID	Units	Initial Background	Groundwater Protection Standard	U.S. EPA Region III RBC	M-2	M-4	M-5A	M-6A	M-8A	M-15
<b>VOLATILE ORGANIC COMPOUNDS</b>										
Benzene	ug/L	--	5	0.34	<1.0	<1.0	1.5	<1.0	<1.0	<1.0
Toluene	ug/L	--	1000	747	<1.0	<1.0	1.9	<1.0	<1.0	<1.0
Ethylbenzene	ug/L	--	700	1340	<1.0	<1.0	3.7	<1.0	<1.0	<1.0
Xylenes	ug/L	--	10000	210	<3.0	<3.0	6.9	<3.0	<3.0	<3.0
Styrene	ug/L	--	100	1620	<1.0	<1.0	1.5	<1.0	<1.0	<1.0
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>										
Pentachlorophenol	ug/L	5	5	0.558	<10	<10	13	<10	<10	<10
Acenaphthene	ug/L	2	939	365	<10	<10	85	<10	<10	<10
Fluorene	ug/L	0.2	626	243	<10	<10	53	<10	<10	<10
Naphthalene	ug/L	2.4	626	6.51	<10	<10	370 A	<10	<10	<10
Phenanthrene	ug/L	0.5	--	1830	<10	<10	39	<10	<10	<10
Dibenzofuran	ug/L	--	8.94	12	<10	<10	47	<10	<10	<10
2-Methylnaphthalene	ug/L	--	44.7	122	<10	<10	65	<10	<10	<10
<b>TOTAL METALS</b>										
Barium	ug/L	--	--	2560	20	80	30	30	70	70
Chromium	ug/L	37.1	100	110	<10	<10	<10	<10	20	20
Copper	ug/L	14	1300	1460	20 B	10 B	20 B	10 B	20 B	20 B
<b>DISSOLVED METALS</b>										
Barium	ug/L	--	--	2560	10	80	20	30	<10	<10
Chromium	ug/L	17	100	110	<10	<10	<10	<10	<10	<10
Copper	ug/L	--	1300	1460	<10	<10	10 B	<10	10 B	10 B

Note: Only detected constituents are shown on table

ug/L - micrograms per liter

NA - compound not analyzed

A - Qualifier used if quantification of analyte is above the calibration curve

B - Qualifier used if the analyte is not detected substantially above the level reported in laboratory blank

Table 5-3  
Summary of Groundwater Quality Results  
December 2002  
Wood Preservers, Inc.  
Warsaw, Virginia

Sample ID	Units	M-20	M-21	M-22	M-23	M-24
<b>VOLATILE ORGANIC COMPOUNDS</b>						
Benzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes	ug/L	<3.0	<3.0	<3.0	<3.0	<3.0
Styrene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
Pentachlorophenol	ug/L	<10	<10	<10	<10	<10
Acenaphthene	ug/L	<10	<10	<10	<10	<10
Fluorene	ug/L	<10	<10	<10	<10	<10
Naphthalene	ug/L	<10	<10	<10	<10	<10
Phenanthrene	ug/L	<10	<10	<10	<10	<10
Dibenzofuran	ug/L	<10	<10	<10	<10	<10
2-Methylnaphthalene	ug/L	<10	<10	<10	<10	<10
<b>TOTAL METALS</b>						
Barium	ug/L	70	2790	250	1030	320
Chromium	ug/L	20	370	40	10	50
Copper	ug/L	20 B	150	50 B	10	50 B
<b>DISSOLVED METALS</b>						
Barium	ug/L	20	60	60	30	30
Chromium	ug/L	<10	<10	<10	<10	<10
Copper	ug/L	<10	<10	<10	10 B	10 B

Note: Only detected constituents are st  
ug/L - micrograms per liter  
NA - compound not analyzed  
A - Qualifier used if quantification of an  
B - Qualifier used if the analyte is not d

**TABLE 6-20**  
**IDENTIFICATION OF CONSTITUENTS OF CONCERN IN SITEWIDE GROUNDWATER**  
**Wood Preservers, Inc. - Warsaw, Virginia**

Constituent	Frequency of Detection	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Sample with Maximum Detect	Minimum Detection Limit (ug/L)	Maximum Detection Limit (ug/L)	Region III RBC: Tap Water (ug/L)	Constituent of Concern	Rationale
<b>VOCs</b>									
Benzene	2 / 28	1.5	25	M-4A (2001)	<b>1</b>	<b>1</b>	0.34	<b>YES</b>	Maximum detect exceeds screening value.
Ethylbenzene	2 / 28	3.7	64	M-4A (2001)	1	1	1340	No	Maximum detect below screening value.
Styrene	2 / 28	1.5	36	M-4A (2001)	1	1	1620	No	Maximum detect below screening value.
Toluene	2 / 28	1.9	50	M-4A (2001)	1	1	747	No	Maximum detect below screening value.
Xylenes	2 / 28	6.9	101	M-4A (2001)	1	3	210	No	Maximum detect below screening value.
<b>PAHs</b>									
2-Methylnaphthalene	3 / 28	12	620	M-5A (2001)	10	10	122	<b>YES</b>	Maximum detect exceeds screening value.
Acenaphthene	2 / 28	85	345	M-5A (2001)	10	10	365	No	Maximum detect below screening value.
Fluorene	1 / 28	53	53	M-5A (2002)	10	<b>250</b>	243	No	Maximum detect below screening value.
Naphthalene	3 / 28	20	5600	M-5A (2001)	<b>10</b>	<b>10</b>	6.51	<b>YES</b>	Maximum detect exceeds screening value.
Phenanthrene (a)	1 / 28	39	39	M-5A (2002)	10	250	1830	No	Maximum detect below screening value.
<b>SVOCs</b>									
Dibenzofuran	1 / 28	47	47	M-5A (2002)	10	<b>250</b>	12	<b>YES</b>	Maximum detect exceeds screening value.
Pentachlorophenol	1 / 28	13	13	M-5A (2002)	<b>10</b>	<b>250</b>	0.558	<b>YES</b>	Maximum detect exceeds screening value.
<b>Total Metals</b>									
Arsenic	3 / 28	10	20	M-16 (2001)	<b>10</b>	<b>10</b>	0.0446	<b>YES</b>	Maximum detect exceeds screening value.
Barium	18 / 18	20	2790	M-21 (2002)	—	—	2560	<b>YES</b>	Maximum detect exceeds screening value.
Chromium	13 / 28	10	370	M-21 (2002)	10	10	110	<b>YES</b>	Maximum detect exceeds screening value.
Copper	22 / 28	10	150	M-21 (2002)	10	10	1460	No	Maximum detect below screening value.
Magnesium	7 / 7	570	5350	M-4A (2001)	—	—	NA	No	Essential Nutrient.
Manganese	7 / 7	10	200	M-6A (2001)	—	—	730	No	Maximum detect below screening value.
<b>Dissolved Metals</b>									
Barium	14 / 18	10	110	M-4A (2001)	10	10	2560	No	Maximum detect below screening value.
Copper	11 / 28	10	30	M-2A (2001)	10	10	1460	No	Maximum detect below screening value.

**Notes:**

NA - Not Available

(a) - Value for phenanthrene based on Region III Tap Water RBC value for anthracene.

— - Constituent detected in every sample; detection limit not presented.

**Bolded detection limit values indicate that these values exceed the screening values.**

**TABLE 6-21**  
**SUMMARY OF CONSTITUENTS OF CONCERN FOR THE HUMAN HEALTH RISK**  
**ASSESSMENT**

**Wood Preservers, Inc. - Warsaw, Virginia**

Area	Medium	Constituents of Concern
AOC 1 - Former Drip Pad Area	Surface Soil	Benzo(a)pyrene Benzo(b)fluoranthene Pentachlorophenol Arsenic
	Subsurface Soil	Arsenic
AOC 2 - Old Treating Plant Area	Surface Soil	none
	Subsurface Soil	Benz(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Arsenic
AOC 3 - Outdoor Treated Wood Storage Area	Surface Soil	Benzo(a)pyrene Arsenic
	Subsurface Soil	Arsenic
SWMU 3 - Former Spray Lagoon	Surface Soil	none
	Subsurface Soil	Arsenic
SWMU 10 - Former Tank Farm	Surface Soil	Benz(a)anthracene Benzo(b)fluoranthene Arsenic
	Subsurface Soil	none
SWMU 11 - Hazardous Waste Drum Accumulation Area	Surface Soil	none
	Subsurface Soil	none
SWMU 12 - Wood-fired Boiler	Surface Soil	none
	Subsurface Soil	none
SWMU 13 - Boiler Ash Staging Area	Surface Soil	none
	Subsurface Soil	none
Drainage Ditch	Surface Soil	Arsenic
Sitewide	Groundwater	Benzene 2-Methylnaphthalene Naphthalene Dibenzofuran Pentachlorophenol Arsenic Barium Chromium



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

*Street address:* 629 East Main Street, Richmond, Virginia 23219

*Mailing address:* P.O. Box 1105, Richmond, Virginia 23218

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Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

(804) 698-4000  
1-800-592-5482

March 25, 2011

W. Morgan Wright  
President  
Wood Preservers, Inc.  
P.O. Box 158  
Warsaw, Virginia 22572

### VIA ELECTRONIC MAIL

**Re: Revised Hot Spot Soil Remediation Plan – SWMU 3, 10, and AOC 3  
Wood Preservers, Inc., Warsaw, Virginia  
EPA ID# VAD003113750**

Dear Mr. Wright,

The Department of Environmental Quality (DEQ), Office of Remediation Programs (Department) received the proposed Hot Spot Soil Remediation Plan-SWMU 3, 10, and AOC 3 (Plan) on January 25, 2011 for the Wood Preservers, Inc. (WPI) facility located in Warsaw, Virginia. Upon the Department's review of the document, revision of the Plan was discussed by the Department and WPI in efforts to include excavation and confirmatory sampling at the SWMU 3 location. In response WPI submitted a revised Plan, received March 16, 2011, incorporating proposed excavation and confirmatory sampling to address SWMU 3.

The "Review of Confirmatory Sampling Results" section found on page 3 of the plan states that confirmatory sample results will be compared to the industrial soil screening level. In addition, please include the site specific background level when making the comparison to screening criteria.

Based on the information provided, the Department approves the revised Hot Spot Soil Remediation Plan-SWMU 3, 10, and AOC 3. Please notify the Department prior to beginning field activities. In addition, please notify the DEQ Piedmont Regional Office prior to temporarily storing excavated soil on-site for assurance that appropriate methods of storage, characterization, and disposal will be implemented. If you have any questions or concerns, please feel free to contact me at (804) 698-4219 or by email at [brett.fisher@deq.virginia.gov](mailto:brett.fisher@deq.virginia.gov).



Sincerely,

A handwritten signature in black ink, appearing to read "Brett Fisher". The signature is fluid and cursive, with the first name "Brett" and last name "Fisher" clearly distinguishable.

Brett Fisher, P.G.  
RCRA CA Project Manager  
Office of Remediation Programs

cc: Andrea Barbieri - EPA Region 3 (3LC50)  
Mike Jacobi – EPA Region 3 (3LC20)  
Kyle Winter - DEQ VRO  
Jutta Schneider, Angela Alonso, Cynthia Houchens, File - DEQ CO



# COMMONWEALTH of VIRGINIA

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Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

(804) 698-4000  
1-800-592-5482

December 8, 2011

W. Morgan Wright  
President  
Wood Preservers, Inc.  
P.O. Box 158  
Warsaw, Virginia 22572

### VIA ELECTRONIC MAIL

**Re: Interim Measure - Hot Spot Soil Excavation – SWMU 3, 10, and AOC 3  
Wood Preservers, Inc., Warsaw, Virginia  
EPA ID# VAD003113750**

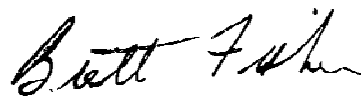
Dear Mr. Wright,

The Department of Environmental Quality (DEQ), Office of Remediation Programs (Department) received the Interim Measures Report for hot spot soil excavation at SWMU 3, SWMU 10, and AOC 3 (Report) on November 28, 2011 for the Wood Preservers, Inc. (WPI) facility located in Warsaw, Virginia.

The Report details excavation activities that occurred at SWMU 3, SWMU 10, and AOC 3 in efforts to remove arsenic impacted soil identified during the RFI investigation. The Report also provides the results of confirmation soil sampling conducted at numerous locations that were randomly selected within each area. These results were used to calculate a 95% upper confidence limit (UCL) for each excavation area. Each UCL was compared to a risk based clean up goal of 16 mg/kg, which is within the acceptable risk of  $10^{-6}$  to  $10^{-4}$  for current and future industrial use of the property.

Based on the information provided, the Department concurs that the clean up goal has been met for SWMU 3, SWMU 10, and AOC 3 and requires no further assessment or remediation within these areas. However, please be advised that an institutional control will be necessary to restrict residential use of the property within these areas and to ensure that future land use remains industrial. If you have any questions or concerns, please feel free to contact me at (804) 698-4219 or by email at [brett.fisher@deq.virginia.gov](mailto:brett.fisher@deq.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Brett Fisher". The signature is fluid and cursive, with the first name "Brett" and last name "Fisher" clearly distinguishable.

Brett Fisher, P.G.  
RCRA CA Project Manager  
Office of Remediation Programs

cc: Andrea Barbieri - EPA Region 3 (3LC50)  
Mike Jacobi – EPA Region 3 (3LC20)  
Kyle Winter - DEQ PRO  
Jutta Schneider, Angela Alonso, file - DEQ CO

# Attachment 12

Owner Comments & DEQ Staff Responses



## Wood Preservers Inc.

*Pressure Treated Lumber, Posts, Timbers, Plywood*  
P. O. BOX 158 • WARSAW, VIRGINIA 22572  
PHONE: (804) 333-4022  
FAX: (804) 333-9269

May 4, 2012

Andrew Hammond  
Water Permit Writer  
Virginia Department of Environmental Quality  
Piedmont Regional Office  
4949A Cox Road  
Glen Allen, Virginia 23060

Re: Response to Draft VPDES Permit VA0083127  
Wood Preservers, Inc. - Richmond County - Warsaw, Virginia 22572

Dear Mr. Hammond:

We are in receipt of your email of April 11, 2012 providing the Draft Public Notice, the Draft Permit, Fact Sheet and associated Attachments. We have reviewed the material and prepared written comments, which are attached. We agree that monitoring without limits (with the exception of pH) is appropriate for a facility of our type, and understand that monitoring of the tree bark mulch area is a new requirement.

As you will read in our comments, we have several specific concerns that we hope are given consideration by the Regional Office Staff. As we discussed during our telephone call last week, our concerns include:

- The change in analyses for the inorganic constituents from "Dissolved" Concentrations, to "Total" Concentrations;
- The redundancy of a separate groundwater monitoring plan for the outdoor wood storage areas, due to the fact that our facility is working with DEQ under the RCRA Corrective Action Program and have completed significant work with regard to potential soil and groundwater contamination of our entire facility. On December 8, 2011 the DEQ, based on our remediation activities, notified us that our outdoor treated wood storage areas had met clean up goals and no further assessment or remediation of these areas was required.
- The use of exceedingly low benchmarks that will be used to evaluate whether potential problems with our stormwater discharge exist;
- The need to revise the SWPPP should benchmarks be exceeded. The time to evaluate, design, implement and monitor improvements to our drain ways will increase our operating costs. Additionally, the benefits of any improvements that we implement may take more time to realize than provided for by frequency of monitoring once every three months. Also, since all of our discharge is from rainfall, (there is no process water discharged), the potential improvements that can be made may be limited.

If during your review you require additional information, please do not hesitate to contact me.

Sincerely,



Morgan Wright  
President

Attachment

## COMMENTS ON VPDES PERMIT PUBLIC NOTICE AND DRAFT PERMIT

### I. PUBLIC NOTICE

#### 1. "Project Description"

##### Comment

- 2<sup>nd</sup> sentence: Delete "storage"
- 3<sup>rd</sup> sentence: Delete "the treated"

### II. DRAFT PERMIT

#### 1. Page 1 of 26, Effluent Characteristics-Total Recoverable Chromium, Copper and Arsenic - Comments apply to both Outfall 001 and Outfall 002 (Page 3 of 26).

##### Comment

The monitoring requirements of the permit state that the chemical analysis of the storm water is to be reported as "Total Recoverable Chromium, Total Recoverable Copper and Total Recoverable Arsenic". We believe that this requirement should be changed to "Dissolved Chromium, Copper, and Arsenic", for the following reasons.

From a sampling perspective, the difference between a "Total" analysis and a "Dissolved" analysis is that the dissolved sample is filtered in the field using a sub-micron (0.45 micron) filter. This filtration takes place before acid is added to the sample. Acid added to the sample will dissolve any particulate matter that may be entrained in the water sample. Since storm water samples from Outfalls 001 and 002 are taken in a natural setting, in a wooded area, where twigs, leaves, decaying matter, insects, etc. are plentiful, and from a channel that is normally dry until an adequate rainfall event occurs, we believe that the dissolved analysis is a better analytical method and is more representative of the quality of our storm water. Our samples typically contain small amounts of naturally occurring materials that could contain the chemicals that are being analyzed. Since the benchmarks for metals in the draft permit are extremely low, (some below 10 µg/L (parts per billion)), any contribution by naturally occurring materials will unfairly raise the reported results.

In addition, analytical problems may occur if the samples are not filtered before analysis. According to our laboratory representatives, the possibility exists that an unfiltered sample may cause "matrix interference" during analysis, which typically results in the need to dilute the sample, raising the detection limit reported by the laboratory. A higher detection limit could make it more difficult to evaluate results, especially in those cases where the detection limit is higher than the benchmark value, particularly if the result is reported as "less than" the detection limit. As an example, the result may be less than 10 µg/L, with a benchmark of 7.3 µg/L.

We also believe that the use of Total Recoverable analysis overstates potential effects since the bioavailability of the chemicals being monitored is not considered. It is well-known that only a fraction of

the "Total" metal detected in a sample can affect aquatic species. We would also like to point out that we understand that the acute criteria for copper (which is the basis for the benchmark value) was derived using dissolved copper concentrations.

In the past, our TSS results have been low, generally lower than the proposed benchmark, an indication that suspended matter does not contribute significantly to pollutant loadings from the site. We expend considerable resources to keep the outfalls and drainage system properly maintained.

We are also concerned that monitoring on a "Total" basis rather than "Dissolved" basis will make it more difficult to evaluate the data. Since we first began taking storm water samples, for over 20 years, our data set contains dissolved results. In effect, we will be starting over, and it will be more difficult for us and Virginia Department of Environmental Quality (DEQ) representatives to evaluate how changes to the Storm Water Pollution and Prevention Plan affect storm water quality.

**2. Page 1 of 26, Effluent Characteristics, Hardness**

**Comment**

Please explain what is meant by "Minimum Hardness" and the analytical method to be used. Under the existing permit, the laboratory calculates a hardness value that is based on both calcium carbonate and magnesium.

**3. Page 2 of 26, item e. (Comment applies to all outfalls)**

**Comment**

- Item e. requests that information be kept regarding storm events including an estimate of the total volume of the discharge sampled. Please clarify if this information is to be reported on the Discharge Monitoring Report (DMR) or submitted separately, or kept as part of the plant's records.

Also, in the past, for each discharge during the quarter, we used the measured rainfall to calculate the average and maximum flow for the quarter. Please clarify that what flow information is to be reported on the DMR.

**4. Page 7, Other Requirements and Special Conditions, 2.a.2. and 2.b.2.**

**Comment**

Please explain why these specific chemicals are listed. None of these chemicals are currently used, or have been used, at the facility.

**5. Page 9, Item 9, Groundwater Monitoring**

**Paragraph 1**

**Comment**

We acknowledge that we are required to perform groundwater monitoring under the Enforcement Order for Post-Closure Care, as summarized on page 9. We would also like to present the following information.

- Discussions are underway between DEQ and Wood Preservers, Inc. (WPI) to modify the Enforcement Order to incorporate an updated calculation of financial assurance. We anticipate that this modification to the Order will be acted upon in the next several months.
- The January 11, 2011 modification to the Order was completed in recognition of the successful remediation of groundwater from the Closed Spray Evaporation Pond (SWMU 2) and to reduce unnecessary monitoring in conjunction with Virginia's and U. S. EPA's Burden Reduction Program.
- Approval was received from DEQ on March 1, 2012 to accelerate on-going remedial activities at the Closed Surface Impoundment (SWMU 1) with the desired goal of completely remediating groundwater from this unit, as well.
- In addition to groundwater monitoring required by the Enforcement Order, the Site is also in the process of completing a site-wide RCRA Remedial Facility Investigation (RFI) and Corrective Measures Study (CMS). More explicit details of the RFI/CMS are discussed below.

**Paragraph 2**

**Comment**

We disagree that a ... "revised groundwater monitoring plan" ... should be prepared to address potential groundwater impacts from outdoor wood storage activities for the following reasons.

- We are in the midst of a site-wide RFI and CMS being directed by DEQ, with oversight by U.S. Environmental Protection Agency (U.S. EPA). This program included a comprehensive sampling and analytical program for all environmental media, including monitoring of groundwater site wide.
- Over the last 12 months, we concluded a soil remediation program, approved by DEQ, to address soil contamination. This "Hot Spot Removal" program evaluated soil quality data across the site, including treated wood storage areas. Based on the data, the evaluation resulted in the removal of soil from three areas, including the treated wood storage area. The program included post-remedial confirmation sampling that had to meet DEQ and U.S. EPA target soil quality requirements. On December 8, 2011 we received a letter from the VADEQ stating that our



outdoor treated wood storage areas, AOC-3, had met clean up goals and required no further assessment or remediation.

- Additional work associated with the RFI will be addressed this year, as a CMS is prepared. The remaining area of concern is the former facility that closed in 1991.

Because of the on-going RCRA groundwater monitoring at the Site, the soil remedial work already completed, and the prospects of completing a CMS for the closed facility, we disagree that a groundwater monitoring plan, specifically for the wood storage areas as detailed in Item 9, should be implemented. Any impacts from use of the area would have been detected in the groundwater sampling performed during the RFI. The soil quality data from this area have already been evaluated by DEQ staff, leading to a "Hot Spot" Remedial Action, with other areas found to be acceptable and no further action required.

We also believe that because our facility uses a post-treatment "accelerated fixation" process for all treated wood that is stored outside, that the potential for impacts to soil are extremely low.

We also disagree with the methodology expressed in the fact sheet which leads to DEQ's recommendation to require submittal of a Groundwater Monitoring Plan for the wood storage area. Specifically, we take exception to:

- The use of our 1994 report, when more current data (both soil and groundwater) are available that directly address the issue.
- The use of storm water runoff data as a basis for concluding that groundwater quality standards have or may have been violated.
- The use of "total" results rather than "dissolved" results.
- The lack of an acknowledgement that the Sedimentation Basin was constructed with a synthetic liner, for the very purpose of mitigating impacts to groundwater.
- The correlation between surface water and impacts to groundwater.
- Please see additional information on this subject in comments for ATTACHMENT 11.

We believe, for the reasons stated above, that no additional groundwater monitoring program is warranted, and if required, would place an unnecessary regulatory burden on WPI. Additional groundwater monitoring will unnecessarily add expenses both for WPI and DEQ, duplicating work that has already been completed.

**Comment**

Page 11 presents Comparative Values for each outfall for Total Recoverable Copper. Page 26 presents Benchmark Monitoring Requirements for several chemicals including copper. Please explain why the values are different and how the values are to be used. We are concerned with having two sets of numbers to evaluate monitoring data. We would also like to state that the benchmark for copper is 178 times lower than the drinking water standard for human consumption.

## VPDES PERMIT FACT SHEET

### 1. Page 2 9. Description of Facility Activities

#### Comment

3<sup>rd</sup> paragraph: Please add the word "lined" in front of the words *sedimentation basin* in the 5<sup>th</sup> sentence. Also, please add the word "dissolved" in front of the word *chromium* in the 6<sup>th</sup> sentence. Also, please insert the words "also includes drainage from the highway and" to the 9<sup>th</sup> sentence.

### 2. Page 3 Last Paragraph

#### Comment

This paragraph should be deleted in its entirety. If revised, the following facts should be included.

- The facility has a Modified Enforcement Order for Post-Closure Care for two closed surface impoundments that were closed as landfills in 1988. The Order requires the facility to conduct groundwater monitoring, provide financial assurance, implement necessary corrective measures, and perform maintenance.
- The Order was modified in 2011 to reduce groundwater monitoring requirements resulting from the successful completion of groundwater remediation activities and to incorporate aspects of Virginia's and U.S. EPA's Burden Reduction Program.
- The Order will be modified in 2012 to update the facility's financial assurance requirements.
- The facility is conducting a Site-wide RFI/CMS under RCRA, directed by DEQ, with oversight by U.S. EPA.
- The 2004 RFI Report contains the results of a comprehensive study of soil, sediment, surface water, and groundwater.
- DEQ's evaluation of the soil quality resulted in 2011 of a "Hot Spot Removal" Program of select areas, with confirmational sampling to assure that targeted remediation goals were met.
- The RFI Report concluded that groundwater impacts were limited to the closed former facility which ceased operation in 1994.
- During 2012, DEQ expects to complete a review of the facility's plans to complete the CMS at the facility.

We also want to note that we strongly contest the comparative analysis using storm water data and groundwater standards.

We believe no additional groundwater monitoring is necessary or warranted at this time.

Specific comments are as follows:

We do not recall that the special condition imposed on Outfall 001 was determined based on information from the RFI Report. Nonetheless, as mentioned previously in this letter, remedial actions have been taken as directed by DEQ based on the data including the wood storage areas. DEQ's analysis did not include a need to address the wood storage area in the Outfall 001 area.

We take exception with the statement ... "Monitoring and reporting during the 2006 permit cycle indicated that the storm water influent exceeded the groundwater arsenic standard three times and the groundwater chromium standard six times." We believe it is a misrepresentation to compare storm water results to groundwater standards.

The analysis summarized in this paragraph does not adequately describe the potential correlation between surface water and groundwater, a complicated phenomenon that goes beyond a superficial comparison of analytical data. Although we acknowledge that rain influences the groundwater table, we contend that it is difficult to estimate the contribution from a surface water source, especially one as small as one emanating for the wood storage areas.

The analysis referred to in the last paragraph fails to take into account the natural process of infiltration. Additionally, geochemical processes would affect the quality of water, retarding chemical transport through adsorption and absorption processes. Furthermore, the saturated zone is very large in comparison to the amount from infiltration via storm water and, therefore, significant dilution occurs. To conclude that ... "there is potential for surface runoff to infiltrate into the shallow water table aquifer below the uncovered treated wood storage areas at concentrations greater than the groundwater standards..." is misleading and technically not defensible.

We do not think a groundwater monitoring plan is warranted for the wood storage areas, since groundwater data have shown no impacts in this area. We believe DEQ has already evaluated the potential for soil to leach into groundwater, along with other issues such as public health, during the RFI process. Including a groundwater monitoring requirement in the VPDES Permit would be duplicative and would impose unnecessary expense.

**NOTE: COMMENTS 3 THROUGH 8 APPLY TO OUTFALL 001 AS WELL AS TO OUTFALL 002**

**3. Page 6 Total Suspended Solids**

**Comment**

Please note that the current permit does not require monthly average reporting as stated in the last sentence.

**4. Page 6 Oil and Grease**

**Comment**

Please note that the current permit does not require monthly average reporting on the DMR as stated in the last sentence, since reporting is quarterly.

**5. Page 6 Total Recoverable Chromium**

**Comment**

As stated previously in this letter, we believe that "Dissolved" analysis for all metals is more appropriate than "Total" analysis.

Also, please provide the current dissolved chromium III WQS and the dissolved chromium VI WQS. Finally, what is the scientific basis for using "two times" these values in assessing future permits?

**6. Page 6 Total Recoverable Copper**

**Comment**

See above comment.

**7. Page 6 Total Recoverable Arsenic**

**Comment**

See above comment.

**8. Page 6 Hardness**

**Comment**

What is the difference between minimum and maximum hardness?

**9. Page 10 i. Part I.B.9-Groundwater Monitoring**

**Comment**

We disagree that a more thorough groundwater investigation is warranted.

**10. Page 20 Item 23. Additional comments, Staff Comments**

**Comment**

Second bullet item: WPI did apply for e-DMR. On February 1, 2011, DEQ informed us via email that our request would not be processed until the permit is reissued.

## COMMENTS ON ATTACHMENTS

### 1. Attachment 2 Facility Flow Diagram

#### Comment

Please note that although the diagram is entitled "Estimated Water Use 2010", the estimates are current and accurate for 2012.

### 2. Attachment 10 NPDES Permit Rating Worksheet

#### Comment

This worksheet indicates that our facility rating increased from 40 to 58. Please explain the increase.

### 3. Attachment 11 Groundwater Memo, Groundwater Monitoring Plan, Post-Closure Care Plan

#### Regional Office Memorandum of February 15, 2012

#### Background Section

#### Comment

The background section is somewhat confusing in that different groundwater monitoring plans are referred to without distinction. For the record, WPI has a groundwater monitoring plan under the Modified Enforcement Order, which is centered on determining the effects of the closed RCRA Units. As part of the RCRA Remedial Investigation (RFI), WPI conducted site-wide groundwater monitoring activities, as detailed in the 2004 RFI Report. In addition, follow-up investigations and interim measures have been and are being conducted to evaluate the nature and extent and potential remediation of groundwater and soil quality impacts resulting from operation of the former wood treating facility that was closed in 1994. Finally, as part of the VPDES Stormwater Permit issued in 1995, WPI has an approved groundwater monitoring plan for the wood storage areas.

We believe the use of a 1994 Plan is not appropriate because more current data exists for the facility. The site has groundwater monitoring wells in place that were used to determine whether treated wood storage activities have impacted groundwater, as detailed in the RFI Report.

We also believe that comparing surface water data to groundwater quality standards is not an appropriate approach, and is misleading and technically indefensible.

***Conclusion Section***

**Comment**

Comparing groundwater quality standards and surface water data is not appropriate. The conclusion that..." there is a potential for surface runoff to infiltrate into the shallow water table aquifer below the uncovered treated wood storage areas at concentrations greater than the groundwater standards"... is based on a technical approach that is difficult to defend. Monitoring data from monitoring wells M-22 and M-23 (as presented in the RFI Report) do not indicate any exceedences of any groundwater quality standards.

***Recommendations Section***

**Comment**

While we disagree that groundwater monitoring is necessary or justifiable, any additional monitoring of groundwater should be incorporated into our existing RFI/CMS project that is ongoing with DEQ personnel. Having a separate groundwater monitoring program related to the VPDES permit will result in duplicative efforts and unnecessarily increase our regulatory burden.



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

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Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Michael P. Murphy  
Regional Director

June 15, 2012

Mr. Morgan Wright, President  
Wood Preservers, Inc.  
P. O. Box 158  
Warsaw, Virginia 22572  
Via E-Mail: [MWright@woodpreservers.com](mailto:MWright@woodpreservers.com)

Re: Wood Preservers, Inc.  
VPDES Permit No. VA0083127  
Response to Owner Comments

Dear Mr. Wright:

The staff of Virginia's Department of Environmental Quality (DEQ) has reviewed your comments received electronically May 7, 2012, in regards to draft Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0083127. Staff offers the following responses:

#### Public Notice

1. The word "storage" has been deleted from the 2<sup>nd</sup> sentence of the Project Description as requested. In addition, the words "the treated" have been deleted from the 3<sup>rd</sup> sentence of the Project Description as requested.

#### Draft Permit

1. The VPDES Permit Regulation, 9VAC25-31-230.C, requires all permit effluent limitations, standards, or prohibitions for a metal to be expressed in the total recoverable form as defined in 40 CFR Part 136. Consequently, the August 25, 2011 revision to the VPDES Permit Manual (Guidance Memorandum 10-2003) indicates that analytical (benchmark) monitoring for all metals should be expressed in the total recoverable form for industrial storm water discharges. Therefore, staff believes monitoring and reporting for total recoverable arsenic, chromium, and copper is appropriate for this permit. Staff acknowledges that previous permits have required monitoring and reporting for dissolved metals; however, significant developments have been achieved in the permitting of industrial storm water discharges. More specifically, the recently reissued General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity (9VAC25-151) includes monitoring and reporting for total recoverable arsenic, chromium, and copper for wood preserving facilities. Please note that Parts I.C.1.a and I.C.5 of the draft permit establish metals screening criteria in the total recoverable form in accordance with Guidance Memorandum (GM) 10-2003 and in consultation with the General VPDES Permit.
2. Part I.A of the draft permit requires monitoring and reporting for hardness (expressed in mg/L as calcium carbonate) once every three months for Outfalls 001 and 002 and once per year for



Outfalls 003 and 004. If multiple hardness samples are collected at a specific outfall during a monitoring period, the “minimum” or lowest hardness value should be reported on the discharge monitoring report for that outfall. Monitoring for hardness should be performed using any approved method presented in 40 CFR Part 136.

3. Sampled storm event information requested in Parts I.A.1.e, I.A.2.e, I.A.3.e, and I.A.4.e should be provided as attachments to the discharge monitoring reports; additional language has been added to the aforementioned parts of the draft permit for clarity purposes.

An estimate of the total flow or volume (in millions of gallons) of the storm event sampled should be reported on the discharge monitoring report for each outfall. If multiple storm events are sampled at a specific outfall during a monitoring period, the “maximum” or highest total flow estimate should be reported on the discharge monitoring report for that outfall.

4. The VPDES Permit Regulation, 9VAC25-31-200.A, requires all existing manufacturing, commercial, mining, and silvicultural dischargers to notify DEQ if any activity has occurred or will occur which would result in the (routine or non-routine) discharge of acrolein, acrylonitrile, 2,4-dinitrophenol, 2-methyl-4,6-dinitrophenol or antimony in exceedance of its notification level established in the regulation and listed in Parts I.B.2.a.2 and I.B.2.b.2 of the draft permit.
5. In response to your comments and in an effort to reduce duplicative monitoring and reporting, Part I.B.9 (Ground Water Monitoring) has been removed from the draft permit. Sections 9, 18, and 20 of the fact sheet (in addition to Attachment 11) have been revised accordingly. Please be advised that the need for VPDES-specific ground water monitoring and reporting will potentially be reevaluated with the next permit reissuance (projected during calendar year 2017).
6. Industrial sector specific (Sector A) benchmark monitoring concentrations are presented in Part I.C.5 of the draft permit. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that violation of a water quality standard has occurred. However, it does signal that modifications to the Storm Water Pollution Prevention Plan (SWPPP) may be necessary or may indicate the need for more specific pollution prevention controls.

Pollutant specific comparative values or concentrations are presented in Part I.C.1.a of the draft permit. Exceedance of a comparative concentration does not constitute a violation of the permit and does not indicate that violation of a water quality standard has occurred. However, it does signal that modifications to the SWPPP, best management practices, or specific pollution prevention controls may be necessary to effectively control whole effluent toxicity. As stated in Part I.C.1.d, you may petition DEQ to waive the annual toxicity tests when the quarterly monitoring results for total recoverable copper are below the comparative values noted in Part I.C.1.a for four (4) consecutive quarters.

#### Fact Sheet

1. The word “lined” has been added to the 5<sup>th</sup> sentence as requested. The word “dissolved” has been added to the 6<sup>th</sup> sentence as requested. Please note that additional language has been added to the fact sheet recognizing that the lined sedimentation basin aids in the removal of suspended metals via settling. The words “also includes drainage from the highway and” have been added to the 9<sup>th</sup> sentence as requested.
2. Paragraph 5 of Section 9 has been revised to reflect the removal of Part I.C.9 (Ground Water Monitoring) from the draft permit. In addition, the last paragraph now identifies on-going site-wide corrective action measures (e.g. soils remediation, ground water monitoring, etc.) taking place at

the facility under the direction of DEQ's Office of Remediation Programs as noted in your comment letter.

3. The facility's 2006 permit lists Outfall 001's total suspended solids (TSS) monthly average limitation as "NL" meaning no limitation is established; however, monitoring and reporting are required. As noted on pages 6 and 12 of the fact sheet, TSS monthly average reporting for Outfall 001 has been removed from the 2012 permit to provide consistency with agency guidance (GM 10-2003) and in accordance with DEQ Piedmont Regional Office (PRO) staff decisions dated 3/27/2012. This response also applies to Outfall 002.
4. The facility's 2006 permit lists Outfall 001's oil and grease monthly average limitation as "NL" meaning no limitation is established; however, monitoring and reporting are required. As noted on pages 6 and 13 of the fact sheet, oil and grease monthly average reporting for Outfall 001 has been removed from the 2012 permit to provide consistency with agency guidance (GM 10-2003) and in accordance with DEQ Piedmont Regional Office (PRO) staff decisions dated 3/27/2012. This response also applies to Outfall 002.
5. As stated in (Draft Permit) response #1 above, staff believes monitoring and reporting for total recoverable arsenic, chromium, and copper is appropriate for this permit. The VPDES Permit Regulation requires all permit effluent limitations, standards, or prohibitions for a metal to be expressed in the total recoverable form, and the recently reissued General VPDES Permit for Discharges of Storm Water Associated with Industrial Activity includes monitoring and reporting for total recoverable arsenic, chromium, and copper for wood preserving facilities.

The current acute dissolved chromium III and chromium VI water quality criteria/standards have been provided in Attachment 8 of the fact sheet for Outfalls 001 and 002; please see the MSTRANTI Water Quality Criteria/Wasteload Allocation Analysis printouts. In addition, please be advised that the acute dissolved chromium III water quality criteria are dependent upon effluent hardness and may change with future evaluations with additional hardness data.

Storm water screening criteria (for future permit assessments) have been established as two (2) times the acute water quality criteria or standards based upon best professional judgment in accordance with the August 25, 2011 revision to the VPDES Permit Manual (Section IN-4, Page 9). In doing so, this recognizes a level of dilution provided by the storm water that is otherwise considered absent during receiving stream low flow conditions. Please note that this screening procedure was also utilized during the 2006 permit reissuance process.

6. The current acute dissolved copper water quality criteria/standards have been provided in Attachment 8 of the fact sheet for Outfalls 001 and 002; please see the MSTRANTI Water Quality Criteria/Wasteload Allocation Analysis printouts. In addition, please be advised that the acute dissolved copper water quality criteria are dependent upon effluent hardness and may change with future evaluations with additional hardness data.
7. The current acute dissolved arsenic water quality criterion/standard has been provided in Attachment 8 of the fact sheet for Outfalls 001 and 002. Please see the MSTRANTI Water Quality Criteria/Wasteload Allocation Analysis printouts.
8. Under the 2006 permit, if multiple hardness samples are collected at a specific outfall during a monitoring period, the "maximum" or highest hardness value should be reported on the discharge monitoring report (DMR) for that outfall. However, the application of maximum hardness data would not be protective of water quality and therefore, is no longer appropriate. As a result, the 2012 permit has been revised to require monitoring and reporting for minimum hardness. If multiple hardness samples are collected at a specific outfall during a monitoring period, the

"minimum" or lowest hardness value should be reported on the discharge monitoring report for that outfall.

9. The Ground Water Monitoring (Part I.B.9) rationale has been removed from Section 18 of the fact sheet.
10. Staff comment #2 (Section 23) has been revised to acknowledge your application for e-DMR.

Attachments

1. Your comment is acknowledged; no change has been made to Attachment 2 (Facility Flow Diagram).
2. The 2006 NPDES Permit Rating Worksheet inadvertently answered "Yes" to Factor 5.A, "HPRI #2" to Factor 6.A and "No" to Factor 6.B. The correction of these items in the 2012 NPDES Permit Rating Worksheet resulted in an eighteen (18) point increase in the facility's rating. Please note that facilities with a rating of less than eighty (80) points are considered to be "minor" sources/facilities.
3. The Piedmont Regional Office (ground water) memorandum dated February 15, 2012, has been removed from Attachment 11 in lieu of a detailed explanation of on-going site-wide corrective action measures (i.e. soils remediation and ground water monitoring) taking place at the facility under the direction of DEQ's Office of Remediation Programs.

**This letter is not a final determination or case decision under the Administrative Process Act.** If you would like to discuss the information contained in this letter, please contact me at (804) 527-5048. In the event that discussions with staff do not lead to a satisfactory resolution of the contents of this letter, you may elect to participate in DEQ's Process for Early Dispute Resolution. For information on the Process for Early Dispute Resolution, please visit the following address:

[http://townhall.virginia.gov/L/GetFile.cfm?File=E:\townhall\docroot\GuidanceDocs\440\GDoc\\_DEQ\\_2672\\_v1.pdf](http://townhall.virginia.gov/L/GetFile.cfm?File=E:\townhall\docroot\GuidanceDocs\440\GDoc_DEQ_2672_v1.pdf)

I plan to contact the newspaper no later than **June 29, 2012**, to publish the public notice. You may submit comments prior to publishing the public notice and through the 30-day public comment period. Please contact me at (804) 527-5048 or [Andrew.Hammond@deq.virginia.gov](mailto:Andrew.Hammond@deq.virginia.gov) if you have any questions about this letter.

Respectfully,



Andrew J. Hammond II, P.E., H.I.T.  
Water Permit Writer

Enc: Draft Permit Package (Revised)

Cc: Emilee Adamson, DEQ-PRO  
John Mitsak, P.E., Mitsak & Associates, P.C.